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REPORT TO CONGRESS

DEVELOPING
A
PROSPECTIVE PRICING SYSTEM
FOR
EXCLUDED HOSPITALS

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The Social Security Amendments of 1983 (P.L. 98-21) established the statutory framework for the Medicare hospital prospective payment system (PPS). Under PPS, the Medicare program is paying hospitals in 47 States and the District of Columbia on the basis of a prospectively determined price for each type of case.1/ At discharge, each case is classified into one of 468 diagnosis-related groups (DRGs). Medicare pays, based on the DRG, an amount that is published at the beginning of the fiscal year — that is, "prospectively."

PPS generally applies to all hospitals participating in the Medicare program, with certain exclusions, exemptions, and adjustments specifically set out under the law. At present, four classes of specialty hospitals — children's, psychiatric, rehabilitation, and chronic-disease — and two types of distinct-part units in general hospitals — psychiatric and rehabilitation — are excluded from PPS.

These hospitals and units are presently excluded from PPS without a time limitation for inclusion; however, the Secretary of the Department of Health and Human Services (DHHS) is mandated to include in the annual Report to the

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1/ Hospitals outside the 50 States and the District of Columbia are exempted from PPS. Hospitals in Maryland, New York, and New Jersey are currently waived from inclusion in the PPS because they meet legislated waiver criteria (under P.L. 98-21) or because they are participating in demonstrations of other payment systems. The New York waiver will end on December 31, 1985.

Congress of 1985 the results of research studies on whether these excluded hospitals and units may be included under PPS. This Report to Congress, subtitled "Developing a Prospective Pricing System for Excluded Hospitals," is prepared in response to the legislative mandate. According to the 1983 amendments:

> In the annual Report to Congress under subparagraph (A) for 1985, the Secretary shall include the results of studies on whether and the method under which hospitals, not paid based on amounts determined under such section, can be paid for inpatient hospitals services on a prospective basis as under such section. (Sec. 603(a)(2)(C)(ii).)

In response to the legislative mandate, the Health Care Financing Administration (HCFA) has undertaken and funded a wide range of research studies over the last 2 years regarding the inclusion of the four classes of facilities excluded under PPS. The results from additional studies conducted outside of HCFA have also been monitored. This Report to Congress reviews these research studies for each hospital class--children's, psychiatric, rehabilitation, and chronic-disease. The research findings are examined to determine whether they support legislative and regulatory recommendations for inclusion of each class of facilities under PPS. The progress towards the development of a prospective pricing system for these facilities is also evaluated in the context of the long-range direction of Medicare reform towards a capitated reimbursement system. These deliberations inform the policy implications and directions for future research that are proposed for each class of excluded facilities.

Understanding the Excluded Hospitals

The Medicare PPS is an empirically based system to the extent that average payment for services is derived from past experience and historical costs associated with patients in individual DRG categories. This design feature of PPS led to congressional consideration of exclusion for certain groups of hospitals. Indeed, the exclusion subsequently legislated for the four specialty classes of hospitals was based explicitly on the fact that the national data base used for creating the DRGs either did not include or underrepresented these groups.2/

The December 1982 DHHS Report to Congress (1982) recognized this deficiency, stating that the "467 DRGs were not designed to account for these types of treatment" found in the specialty classes of hospitals, and noted that "including these hospitals will result in criticism...(and) their application to these hospitals would be inaccurate and unfair." This latter phrase reflects a further and more implicit reason for exclusion of these hospitals -- namely, that anecdotal data

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2/ The HCFA-funded data base used by Fetter, Thompson, and colleagues to develop DRGs (Fetter, et al., 1977, 1980, and 1982) was drawn from adult acute-care hospitals. No children's hospitals or freestanding psychiatric hospitals, for example, were included in the data base, so few of the patients typically treated in these types of hospitals were to be found in the sample. Furthermore, the Medicare, Michigan Medicaid, and Maryland all-payor cost data used to construct DRG weights for use by HCFA as a basis for the PPS did not include adequate data for these classes.

suggested that DRGs worked less well for these treatment classes than for other medical specialties. One problem was that the available evidence suggested that the resource needs of patients in these hospitals were not necessarily correlated with diagnosis. Another problem was that these facilities were part of a highly differentiated hospital delivery system in which they occupied different roles from general hospitals.

A total of 5,405 hospitals--or 81 percent of all hospitals in the United States--were operating under PPS as of the end of June 1985. In addition, nearly 1,800 certified hospitals and distinct-part units of hospitals--or precisely 664 hospitals and 1,135 distinct-part units--had applied for and received an exclusion under PPS. The distribution of the hospitals and distinct-part units that received exclusion as of June, 1985 is shown in the table that follows.

There are several points about the approximately 1,800 facilities receiving exclusion status that need to be considered in research and policy development efforts. The first consideration is that not all of the hospitals and units that fall generically into these four specialty classes may have met the HCFA eligibility criteria or appied for an exclusion. In addition, the exclusion category of a facility may not fully reveal the institutional characteristics or patient population served. An example is those chronic-disease hospitals receiving exclusion as long-term care institutions with average stays exceeding 25 days, but which actually treat patients highly similar to those treated in rehabilitation facilities.

Excluded Hospitals and Units under PPS

(totals as of June 30, 1985)

Specialty Type	June 1985
Children's	49
Psychiatric	
Hospitals	464
Units	762
Rehabilitation	
Hospitals	63
Units	373
Chronic-Disease	88
Total	
Hospitals	664
Units	1135

Note: The numbers include data for hospitals and units in waivered States that meet the criteria for excluded hospitals and excluded units under PPS. These data are phased-in according to the fiscal year start dates of the facilities.

Source: HCFA/Health Standards Quality Bureau Reports of Exclusion Activity

A second consideraton is that the level of Medicare reimbursements that are associated with each class of excluded facilities will have profound implications for a Medicare prospective pricing system for these facilities. 4/ Children's hospitals, for example, receive very few Medicare dollars, but perhaps as much as 45 percent of their revenues from state Medicaid programs. For psychiatric hospitals and units, the proportion is lower, perhaps 15 percent. Rehabilitation hospitals and units receive perhaps 40 percent or more of their revenues from the Medicare program. Chronic-disease hospitals receive a very small proportion from the Medicare program, presumably because of the Medicare coverage constraints on long periods of hospitalization.

The third point contrasts the economic incentives of the cost-based system under which the excluded facilities are currently reimbursed--commonly referenced as the Tax and Fiscal Responsibility Act (TEFRA) of 1982 (P.L. 97-248)--with the incentives of a prospective price-based system. From its inception, the Medicare program was based on a retrospective cost-based reimbursement system. With the Social Security Amendments of 1983, the excluded hospitals and units continued to be reimbursed by Medicare on the basis of reasonable and allowable costs, although with important modifications legislated by TEFRA. Prior to TEFRA, hospitals were reimbursed by Medicare according to a system of limits for daily routine occupancy costs, plus the reasonable costs incurred for special and ancillary care. Under

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4/ These percentages roughly parallel those given in Table 2-7. Both these figures and those in Chapter 2 are highly imprecise estimates until HCFA's Bureau of Data Management and Strategy (BDMS) is able to tabulate the Medicare data for the first year of PPS.

TEFRA, reimbursement limits were extended to total operating costs per discharge. Upper limits for inpatient operating costs per case were established by Section 1886(a) of the Act, while Section 1886(b) established a target rate of increase (applied at the case level) that would result in reduced reimbursement if exceeded by a hospital or an incentive payment if a hospital did not exceed its limit. Each hospital's "target" became the lesser of the two limits.5/

In effect, the TEFRA legislation established for each hospital a limit on inpatient operating costs per discharge -- conceptually, a kind of single-DRG payment limit applicable to all cases. And while the TEFRA limits have meant that excluded facilities do not participate in PPS, they still arguably function under a prospective limit-based system that utilizes similar (yet probably weaker) economic incentives to those of PPS. Thus, from a strict cost-control perspective, expenditures of excluded facilities are subject to rigorous controls.

Developing a Prospective Pricing System

The success of a prospective pricing system for the excluded hospitals and units will be judged on the basis of its capability for promoting a cost-effective system of care for Medicare beneficiaries while maintaining a high degree of equity or fairness of Medicare payments across providers.

5/ Since October 1, 1983, only the rate of growth ceiling provision has continued, and this was subsequently modified and made more restrictive.

The methods and tasks that must be undertaken in order to develop a prospective pricing system for the excluded facilities include:

- o analysis of delivery system:

  The collection of data and other information to provide an analysis of the delivery system of the excluded facilities must be undertaken. The use of resources required for patient care must be related to variables describing the nature of patients and providers.

  In contrast to general hospitals, the excluded facilities constitute highly differentiated systems of specialized services. Patients are frequently transferred from general hospitals to these facilities, which serve different purposes than the general hospitals. For example, patients may be admitted for rehabilitation services or may require repeated readmissions over a long period. Also, the excluded facilities are especially likely to treat patients with chronic or continuously-recurring illness.

- o development of classification system:

  The feasibility of a patient classification system that could be utilized as the basis for a case-based prospective payment for these facilities in ways that are compatible with DRGs under PPS must be assessed. In addition to the medical diagnosis which is the basis of the DRG system, patient care requirements in these facilities may be described by functional status or social support characteristics--measures which presently are not

included on Medicare data bases and frequently are not well-developed conceptually. The definition and payment of outlier cases--unusually lengthy or costly cases --must also be reviewed for each of these four classes of hospitals.

- o design of payment system:

The additional hospital-specific characteristics of resource usage in these excluded facilities must also be examined. These factors include urban or rural location, teaching status, ownership, proportion of public or poor patients, and other characteristics that modify the costliness of care for like cases treated in different facilities. These factors may be applied to moderate the incentives of a national pricing system, for either a transitional or indefinite period.

- o impact assessment of payment system:

An impact assessment of the redistributional outcomes for affected facilities and for other parts of the health care delivery system must be performed. This analysis should assess the consequences, in terms of both systematic and unsystematic risk,6/ for the structure of these

6/ The concepts of systematic and unsystematic risk receive extensive discussion in Chapter 3.

delivery systems and should also consider the additional administrative requirements (e.g., data bases) of the proposed payment system.

o legislative recommendations:

The legislative and regulatory recommendations for inclusion of the four specialty classes of hospitals under a prospective pricing system must be developed. In the absence of short-range legislative recommendations, a research agenda and schedule for the development of policy options should be specified.

As the research proceeds through each of these tasks, and results and accomplishments are achieved and reported, payment system options for including the four excluded classes of facilities under a prospective pricing system will begin to take shape and can be deliberated. The detailed presentation of this research and related policy options for each of the classes of specialty hospitals forms the focus of the final section of this report.

Reviewing Research Studies on PPS for Excluded Hospitals

The above paradigm of the necessary tasks in the development of a prospective pricing system for excluded hospitals provides a useful structure for organizing the presentation of the research studies for each of the four specialty classes. The studies described in this report addressed a subset of the five tasks. The matrix drawn below presents an overview of those tasks that are completed (C), begun (B) or planned (P) for each of the four specialty classes of hospitals.

	Delivery System	Classification System	Payment System	Impact Assessment	Recommendations
Children's	C	C	B	P	P
Psychiatric	C	B	B	P	P
Rehabilitation	B	B	B	P	P
Chronic-Disease	B	B	B	P	P

Children's Hospitals

Under a HCFA cooperative agreement awarded in July 1984, the National Association of Children's Hospitals and Related Institutions (NACHRI) undertook a study to develop a revised DRG system for pediatric inpatient care.

The study was designed with three phases, which parallel the first, second and third tasks as they are delineated above:

analysis of delivery system:

Phase I used a Commission on Professional and Health Activities (CPHA) data base of 500,000 pediatric records to describe the distribution of DRGs and resource use across four types of hospitals treating children —children's hospitals, university hospitals with primary-site pediatric residencies, community hospitals with pediatric residencies, and community hospitals without pediatric residencies.

This analysis indicates that:

Children's hospitals, which received PPS exclusion, are very similar in case-mix and resource use to university hospitals with primary pediatric residencies

Children's and university hospitals treat a broader mix of pediatric conditions than community hospitals.

Children's and university hospitals treat virtually all of certain pediatric conditions (e.g., oncology, cardiac surgery, severely impaired neonates).

development of classification system:

Phase II developed a revised pediatric classification system combining other case-mix measures with the currently legislated DRGs. These measures included the SysteMetrics disease-staging categories, a modified pediatric version of the disease-staging categories, the patient management categories (PMCs) of Blue Cross of Western Pennsylvania, the Horn severity measure, and variables for age and birthweight.

This effort developed a revised classification system —pediatric DRGs (PDRGs) — which redefined certain DRGs and split other DRGs, resulting in 73 additional groups.

The new PDRGs require only existing data elements on the standard billing form with one exception — that of additional birthweight categories for neonates under 29 days.

Because the revised groups are frequently defined on the basis of the underlying severe condition, the PDRGs characterize the most expensive pediatric cases reasonably well.

The revised PDRGs could be applied to pediatric hospital care delivered in children's, university and community hospitals.

design of payment system:

Phase III of the study will apply detailed cost-accounting data from a sample of 12 children's hospitals and a stratified sample of teaching hospitals in order to validate the revised pediatric classification system and to analyze a set of payment system issues—e.g., cross-subsidization in all hospitals except children's hospitals—required for implementation of a prospective pricing system for pediatric hospitalization. This work is scheduled for delivery at the end of 1985.

Policy Implications:

- If the Phase III analysis indicates that pediatric care is highly subsidized by adult care in general hospitals, new methods of cost-finding will be required to set payments that will be fair to children's hospitals, and those methods may require significant revision of overall Medicare costing procedures.

- After the Phase III analysis is completed and a payment system is designed, an impact analysis of the redistributional effects of the proposed prospective pricing system for pediatric care will need to be performed.

- HCFA will at this time consider adopting the revised PDRG system for purposes of Medicare and Medicaid reimbursement of pediatric care across all providers. NACHRI would be expected to favor this option.

Recommended Research Studies:

- Reimbursement systems to encourage an integrated delivery system of care for severe pediatric conditions (e.g., congenital defects) have not received attention in the research studies conducted to date. Children's hospitals are especially likely to treat these children, who may not fit neatly into payment systems based on PDRGs for inpatient services.

Psychiatric Hospitals and Distinct-Part Units

In June 1984, the National Institute of Mental Health (NIMH) awarded a contract, which was jointly funded by NIMH and HCFA, for the development of a patient classification system on which a Medicare prospective pricing system for psychiatric hospitals and distinct-part units could be based. In addition, substantial work on this problem was conducted intramurally at NIMH and outside of the Federal government by trade and professional associations in the psychiatric field.

The findings of these studies include:

analysis of delivery system:

The psychiatric inpatient care system consists of different types of facilities performing very different roles and exhibiting very different costs per stay.

Medicare coverage of psychiatric services is unlike its coverage of general health services.

Medicare admissions constitute 10-15 percent of admissions to psychiatric facilities, and the majority of these are disabled beneficiaries who are probably disabled by psychiatric conditions.

development of classification system:

The DRGs are inappropriate for prospective payment for excluded psychiatric facilities—that is, they explain very little of the variation in resource usage.

Efforts to identify additional patient characteristics (e.g., functional status or certified mental disability) that might better predict resource usage for psychiatric facilities produced little improvement in the classification system.

The intensive care that is delivered in the excluded facilities might be considered a procedure and classified in a similar fashion to surgical procedures in the current DRGs.

design of payment system:

The outlier policy might be modified for psychiatric facilities to allow short-stay outliers and a larger portion of long-stay outliers.

Capitating psychiatric services may be an important approach for disabled Medicare beneficiaries.

Facilities might be reimbursed differently according to the relative number of patients received in transfer and transferred out.

Policy Implications:

- The implementation of the current DRGs would result in substantial reallocation of reimbursements among psychiatric facilities. There is little evidence that this reallocation would be warranted.

- The high degree of differentiation in the psychiatric system suggests that some of the reallocation would fail to recognize differences in patient needs between facilities.

- The high volume of transfers and the low volume of Medicare patients suggest that Medicare beneficiaries would be vulnerable to discrimination in the psychiatric system.

Recommended Research Studies:

- The analysis of classification and payment options presented above suggests several strategies which should be tested with HCFA data becoming available over the next 2 years. This work will be undertaken jointly by NIMH and HCFA and is scheduled for completion in time for the Report to Congress of 1987.

- NIMH and HCFA should jointly investigate the development of a capitated payment system that would encourage integrated services across all parts of the mental health delivery system and would hold special advantage for Medicare psychiatrically disabled beneficiaries.

Rehabilitation Hospitals and Distinct-Part Units

In October 1984, the Medical College of Wisconsin (MCW) and the Rand Corporation began a joint effort to investigate the feasibility of a Medicare prospective payment system for rehabilitation hospitals and distinct-part units.

The Medical College of Wisconsin conducted a patient-record survey of rehabilitation facilities stratified for facility type and region. The abstracted records included standard discharge data, diagnostic condition defined by the HCFA list for exclusion of rehabilitation facilities, functional status and other related patient measures, billing data, and facility information gathered from a telephone interview. The Rand Corporation assisted in the design and analysis of the survey data, and obtained a 20 percent sample of the HCFA patient billing datafile (PATBILL) for fiscal year (FY) 1984 -- the initial implementation year of PPS.

At the end of the initial 12 months of the project, the Rand/MCW results include:

analysis of delivery system:

There are differences in average length of stay (LOS) and charges among the types of rehabilitation facilities, with rehabilitation hospitals generally exhibiting longer stays and lower per-diem charges than distinct-part units in hospitals.

The vast majority (80-85 percent) of rehabilitation patients are admitted from acute-care hospitals and receive rehabilitation care that is integrally related to their care in the acute hospital.

Three conditions--stroke, hip fractures and arthritis--account for approximately two-thirds of rehabilitation services for the Medicare elderly.

development of classification system:

The diagnostic conditions defined by HCFA explain 12 percent of the variation in total charges for rehabilitation stays; and the addition of functional status and other measures of patient condition at admission and discharge increases the explained variation to approximately one-third of the total.

While these preliminary findings suggest that resource use in rehabilitation facilities is reasonably correlated with patient care needs, the patient status measures on which they depend are insufficiently objective for use in a reimbursement system and do not currently appear on standard discharge data bases.

Policy Implications:

- A prospective pricing system for the excluded rehabilitation facilities probably should not be developed separately from the PPS for the acute-care hospitals from which the vast majority of their patients are received.

- An extensive effort would be required to develop and collect a nationally-accepted set of patient status measures for application in a classification system for rehabilitation facilities.

- Given the complexity of designing unique payment systems for rehabilitation facilities, it should be considered whether continued use might be made of TEFRA payment principles while every effort is made to move towards the broader Medicare reform objective of capitation. Under capitation, both acute and rehabilitation care would become part of a larger payment package.

Recommended Research Studies:

- The finding of the high frequency of admission of rehabilitation patients from acute-care hospitals, and a preliminary analysis indicating that apparently similar patients (as measured by DRGs) receive treatment in both rehabilitation and skilled nursing facilities, indicate the need for further study of reimbursing a single episode of care that includes both acute and post-acute settings.

- Alternative payment options, which might include capitation systems, could then be developed and tested through demonstration projects.

Chronic-Disease Hospitals

Boston University has begun a study of the 88 chronic-disease hospitals that qualified for the HCFA exemption as of June 1985.7/ This study is designed in two phases that parallel the first and fourth tasks of the paradigm outlined above:

analysis of delivery system:

Phase I described the excluded chronic-disease hospitals, augmenting the HCFA list of facilities and characteristics with American Hospital Association (AHA) data and a telephone interview with a sample of administrators and nursing directors. The findings indicate that:

> These excluded facilities comprise a diverse set, including chronic-disease, rehabilitation, psychiatric, tuberculosis and respiratory disease, children's, general, and other specialty and non-specialty hospitals.
>
> About one-third (33 that could be identified on both the HCFA and AHA lists) of these facilities fit the criteria of "true" chronic-disease hospitals--i.e., a mission of heavy-burden, long-term hospital care for patients who are terminally ill, respirator-dependent or suffering from multiple debilitating conditions.

7/ The HCFA exclusion criterion for these facilities was based on an average length of stay (LOS) of greater than 25 days. See Chapter 2 for a detailed discussion of this matter.

These 33 facilities are distributed geographically so that 20 are located in Massachusetts and the remaining 13 on the Eastern Seaboard from Virginia to New England.

These facilities typically exhibit two historical antecedents—either a public institution for the treatment of a public health problem (e.g., tuberculosis) or a collection of skilled nursing facilities held under single ownership and including a few hospital-level beds.

impact analysis of payment system:

Phase II, which is scheduled for completion at the end of 1985, will analyze HCFA PATBILL files for FY 1984 to evaluate the impact of Medicare reimbursement under TEFRA for the excluded facilities and under a simulated PPS for chronic-disease hospitals. In one specification, the simulated reimbursement will include both the acute and chronic-disease stays.

Policy Implications:

- Given the small number of chronic-disease hospitals and the complexity of designing unique payment systems for these facilities, it should be considered whether continued use might be made of TEFRA payment principles while every effort is made to move towards the broader Medicare reform objective of capitation. Under capitation, both acute and chronic-disease hospital care would become part of a larger payment package.

Recommended Research Studies:

- Like the rehabilitation hospitals, the chronic-disease hospitals admit a large number of patients directly from acute-care hospitals, and treat patients apparently similar to those of rehabilitation and skilled nursing facilities. This indicates a need for further study of reimbursing a single episode of care that includes both acute and post-acute settings. This research would allow development and testing of payment options, including capitation.

Organization of the Report

Chapter 2 focuses on characteristics and policy issues that cut across the four classes of excluded hospitals. It begins with a brief legislative history and rationale for exclusion under PPS, then discusses the process developed for initial exclusion of these hospitals, and updates their current status. The chapter then presents available data on the different levels of Medicare program expenditures for these classes of hospitals, and concludes with a discussion of current Medicare payment policies—i.e., TEFRA—for these facilities.

Chapter 3 introduces the methods and tasks for constructing and choosing the design features of a prospective pricing system for excluded facilities. It includes a discussion of the design features of the present Medicare PPS, and an analysis of the unique characteristics and special issues that must be considered in a payment system for the excluded facilities.

Chapter 4 provides a synopsis of the unique aspects of each hospital specialty class, reviews and analyzes relevant research studies, and draws implications for policy. Each section of this chapter includes a brief description and analysis of the particular excluded class of facilities. HCFA-funded research studies are described and assessed, and other available studies are briefly reviewed. The section concludes with a consideration of the implications for specific directions for policy and further research studies.

Chapter 2

UNDERSTANDING EXCLUDED HOSPITALS: A DESCRIPTIVE OVERVIEW

Introduction

A total of 5,405 hospitals -- or 81 percent of all hospitals in the United States -- were operating under the Prospective Payment System (PPS) as of the end of June 1985. At the same time, nearly 1,200 certified hospitals and over 1,100 certified distinct-part units of hospitals have applied for and received exclusions under the PPS. Almost all of these excluded hospitals and units fall under one of four categories of excluded hospitals -- children's, psychiatric, rehabilitation, and chronic-disease.

Excluded hospitals are notable for some similarities and parallels, especially for payment purposes. A number of unique characteristics, however, caution against grouping them to any significant extent. There is evidence that each specialty class of these hospitals is part of a highly differentiated system, about which a substantial amount of information remains to be gathered.

This chapter focuses on characteristics and policy issues that cut across these four classes of excluded hospitals, that make them correspondingly similar yet different from each other. It begins with a brief legislative history and rationale for exclusion under PPS, then discusses the process developed for initial exclusion of these hospitals, and updates their current status through the administrative process of "reverification." The chapter next presents available data on the very different levels of Medicare program expenditures for these classes of hospitals, and concludes with a discussion of current Medicare payment policies and the

issues of attendant payment incentives for delivery of care that span all four of these specialty types.

Rationale and Status of Exclusion under PPS

Legislative History

The new Medicare PPS is an empirically based system; that is, payment for services is derived from past experience and historical costs. This design feature of the DRG system was foremost among the reasons for congressional consideration of exclusion for certain groups of hospitals.

Indeed, the exclusion subsequently legislated for these four special classes of hospitals was based explicitly on the fact that the national data base used for creating the DRGs either did not include or underrepresented these groups. The HCFA-funded data base used by Fetter, Thompson, and colleagues to develop DRGs (Fetter, et al., 1977, 1980, and 1982) was drawn from general acute care hospitals. No children's hospitals or free-standing psychiatric hospitals, for example, were included in the data base, so few of the patients typically treated in these types of hospitals were to be found in the sample. Furthermore, the Medicare, Michigan Medicaid, and Maryland all-payer cost data used to construct low volume DRG weights for the Medicare PPS did not include adequate data for these classes. For example, the Michigan and Maryland cost data included only one children's hospital. Thus, any distortions introduced during the development of DRGs by the omission or underrepresentation of data were not accounted for in the development of PPS.

The December 1982 Department of Health and Human Services Report to Congress (1982) recognized this deficiency, stating that the "467 DRGs were not

designed to account for these types of treatment" found in the four special classes of hospitals, and noted that "including these hospitals will result in criticism...(and) their application to these hospitals would be inaccurate and unfair."

This latter phrase reflects a further and more implicit reason for exclusion of these hospitals -- namely, that anecdotal data suggested that DRGs worked less well for these treatment classes than for other medical specialties. One problem was that the available evidence suggested that the resource needs of patients in these hospitals were not necessarily correlated with diagnoses. A second concern was that the mix of service intensities provided by these classes significantly differed from that of general medical/surgical hospitals. The legislative history report of the 1983 Amendments asserted that the "DRG system was developed for short-term acute care hospitals and as currently constructed does not adequately take into account special circumstances of diagnoses requiring long stays" (U.S. Code, 1983).

The Process and Implementation of Exclusion Status

Following enactment of the Social Security Amendments in April of 1983, HCFA undertook a number of initiatives over the next several months to assure implementation of the new PPS by October 1 of that same year. Of particular importance was the publication of the rules and regulations. The interim final rule (and accompanying explanatory material) was published in the Federal Register (Vol. 48, No. 171, pp. 39752-39890) on September 1, 1983. Following a public comment period and subsequent decisions about the issues raised by the comments received, HCFA published the final rule for the first year of PPS in the Federal

Register (Vol. 49, No. 1, pp. 234-334) on January 3, 1984. Similar iterations to update and modify the rules and regulations for FY 1985 and FY 1986 occurred in July through August 1984, and June through August of 1985, with subsequent publications in the Federal Register. Together the initial legislative mandate and the published rules and regulations addressed several important program issues, including exclusion criteria for a diverse set of providers. These included psychiatric, rehabilitation, alcohol and drug units,[1] as well as an exempted type -- cancer referral centers.

Exclusion criteria for children's and chronic disease hospitals were simply defined in the 1983 Amendments' legislative language. For psychiatric and rehabilitation hospitals and units, however, determination for exclusion from PPS has been based on specific regulatory criteria relating to the types of patients treated, services provided, staffing characteristics, and accreditation status. For psychiatric or rehabilitation freestanding hospitals, the facility has been required to meet the general conditions of participation for hospitals, as well as meeting the special conditions of participation within its particular specialty class. For distinct-part units within these two classes, exclusion has hinged upon association with a participating hospital, written admission criteria that apply to both Medicare and non-Medicare patients, separately identified admission and discharge records, policies under which necessary clinical information is transferred to the

[1] For a description and discussion of other excluded and exempted hospital types, such as cancer referral centers and alcohol and drug units, see, for example, the Secretary's Report to Congress on the Impact of PPS for Fiscal Years 1984 and 1985.

unit with each patient, compliance with applicable state licensure laws, utilization review standards for the type of care offered by the unit, separate beds that do not "commingle" with the hospital's other beds, servicing by the hospital's regular intermediary, financial structuring as a separate cost center, an accounting system that separately identifies and allocates its costs, maintenance of data to support the basis of allocation, and use of the same fiscal report period and cost apportionment method as the hospital (42 CFR 405.471(c)(4)(i)). Table 2-1 outlines the specific exclusion criteria for each of the four specialty types.

In addition, the actual process of defining an exclusion is the joint responsibility of several different organizational actors. HCFA Regional Offices are responsible for arranging surveys to verify compliance with the exclusion criteria, and for deciding, based on the survey results, whether specific hospitals or units will be excluded. Intermediaries generally will verify compliance with all criteria that are related to accounting (e.g., the ability to maintain separate cost centers for distinct-part units) or are verifiable from cost reporting data (e.g., length-of-stay for chronic-disease hospitals). In addition, intermediaries generally will verify compliance with the 75 percent rehabilitation caseload requirement for rehabilitation hospitals and units.[2] State survey agencies generally will verify compliance with all other requirements, such as those relating to the qualifications of the director of rehabilitation.[3]

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[2]See Table 2-1

[3]In some regions, differences in workload may require a division of responsibilities different from that described above. For example, compliance with the 75 percent requirement may be determined by the State agency rather than the intermediary. In these cases, the regional offices will decide which entity verifies each exclusion criterion.

In general, each hospital or distinct-part unit across all four specialty types is subject to or excluded from PPS according to its status at the beginning of each cost reporting period. This status continues throughout the period, unless the

TABLE 2-1

Exclusion Criteria

Children's	o inpatients predominantly individuals under 18 years of age (based on hospital's most recently filed cost report) o provider agreement with Medicare o meets Medicare's definition of a hospital
Chronic-Disease	o average inpatient length of stay of more than 25 days (Section 1886(d)(1)(B)(iv)) o provider agreement with Medicare (see HIM 15, Section 2803)
Rehabilitation* See 42 CFR sections 405.47(c)(2),(c)(4)(i) and (c)(4)(ii))	o reasonable and necessary to furnish the care on an inpatient hospital basis, rather than in a less care-intensive facility (e.g., SNF) or on an outpatient basis o 24-hour availability of physician with special training or experience in rehabilitation, and frequent (every 2-3 days), direct and medically necessary physician involvement o 24-hour availability of a registered nurse with special training or experience in rehabilitation o at least 3 hours per day of physical or occupational therapy, in addition to other required therapies or services (speech therapy, social services, psychological services, or prosthetic-orthotic services o care from multidisciplinary team, minimally including a physician, rehabilitation nurse, and therapist

	o a coordinated program of care, including team conferences held at least once every 2 weeks to determine the appropriateness of continuing need of care
	o primarily engaged in furnishing intensive rehabilitation, such that during the hospital's most recently completed 12-month cost-reporting period, a minimum of 75 percent of inpatients treated for one or more of 10 specified conditions (e.g., stroke, spinal cord injury)
	o a hospital must have a preadmission screening procedure
Psychiatric* (See 42 CFR 405.471 (c)(3)(ii))	o treating only patients with a principal admission diagnosis contained within the 1983 American Psychiatric Association's Diagnostic and Statistical Manual (DSM-III)
	o directed by a board-certified (or eligible) psychiatrist
	o furnishing psychological and social work services
	o supervised by a registered nurse qualified in psychiatric nursing; and
	o providing an individualized treatment patient plan developed by a multidisciplinary team consisting of at least a physician, a psychologist, and a psychiatric nurse

* In addition to meeting the same requirements as acute care hospitals, rehabilitation and psychiatric distinct-part units must satisfy a few special requirements. They must apply written admission criteria uniformly to Medicare and non-Medicare patients, in order to discourage patient shifting. The units must be separate cost entities, with separate medical and financial records. Distinct-part units beds may not be used for acute care patients.

hospital is excluded because of its participation in an approved demonstration project or a statewide waiver is granted. This approach was taken to avoid administrative difficulties that could arise if a hospital or unit were paid under different systems during a single cost reporting period. In addition, once exclusion has been granted, there is an annual reevaluation or "reverification" to determine each facility's status for the next cost reporting period.

Current Exclusions

Statistics compiled through June 1985 broadly indicate the extent to which providers across these four specialty treatment groups (as well as others) are responding to Medicare's new payment system. Tables 2-2 through 2-5 list the number of hospitals and units of each type that have applied, been approved and/or denied, and are excluded from the PPS.

The aggregate numbers of excluded hospitals and units are further shown in Table 2-6 for both March and September of 1984 and 1985. As this table points out, the numbers of some types of excluded hospitals (such as psychiatric hospitals) have remained virtually unchanged since March 1984, while other types (e.g., rehabilitation hospitals) and units (e.g., psychiatric) have greatly increased in number. Psychiatric freestanding hospitals have shown little change with time because historic participation in Medicare allowed automatic exclusion under the new system. At the same time, extremely large increases in numbers of exclusions reflect, in part, 5-6 month lag times that have been encountered in the application and certification process, especially during the initial year. In other instances, final rules have been modified to allow for a greater number of exclusions.

Table 2-2

PPS Exclusions - Children's Hospitals

	(Cumulative totals as of)	FY 1984		FY 1985	
		March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Initial Requests		44	48	53	53
Approvals		38	47	49	49
Pending		5	-	3	3
Denied		1	1	1	1
-Staffing		-	-	-	-
-Records		-	-	-	-
-Other		1	1	1	1[1]
Reverification		N/A	N/A	10	35
Approvals				10	35
Denied				-	-
-Staffing					
-Records					
-Other					
Total Number of Exclusions		38	47	49	49

N/A = Not Applicable

[1]Age criterion was not met in 1 hospital.

Source: HCFA/ Health Standards and Quality Bureau Reports of Exclusion Activity

Table 2-3

PPS Exclusions - Psychiatric Hospitals and Units

(Cumulative totals as of)	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Hospitals[1]	429	439	439	464[2]
Units				
Initial Requests	803	966	1091	1091
Approvals	380	722	768	798
Pending	282	19	82	50
Denied	141	225	241	241
-Staffing	29	40	44	44
-Records	19	16	20	20
-Not a Distinct Part	12	70	75	75
-Other	81	99	102	102[3]
Reverification	N/A	N/A	321	521
Approvals			290	485
Denied			31	36
-Staffing			25	25
-Records			1	1
-Not a Distinct Part			4	4
-Other			1	6[4]
Total Number of Unit Exclusions	380	722	737	762

N/A = Not Applicable

[1]All freestanding psychiatric hospitals were automatically excluded from PPS, if Medicare certification requirements were met.

[2]Includes 27 initial approvals and 2 reverification denials since March 31, 1985.

[3]Includes instances of commingling of beds (1), no license (5), no utilization review standards (5), application received after deadline ha expired for cost reporting period (3), facility no longer operational (2), admissions not limited to patients whose primary reason fo admission was active psychiatric treatment (3), inadequate allocation of cost reporting (1). The majority of facilities falling into thi category were in violation of more than one exclusion criterion.

[4]Includes instance of facility closing (1).

Source: HCFA/Health Standards and Quality Bureau Reports of Exclusion Activity

Table 2-4

PPS Exclusion - Rehabilitation Hospitals and Units

(Cumulative totals as of)	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Hospitals				
Initial Requests	51	50[1]	69	74
Approvals	35	49	54	63
Pending	15	-	19	10
Denied	1	1	1	1
-Staffing	-	-	-	-
-Records	-	-	-	-
-Rehab Director	-	-	-	-
-75% Rehab Case Mix	1	1	1	1
-Other	-	-	-	-
Reverification	N/A	N/A	14	40
Approvals			14	40
Denied			-	-
-Staffing				
-Rehab Director				
-75% Rehab Case Mix				
-Other				
Total Number of Hospital Exclusions	35	49	54	63

Table 2-4 (continued)

	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Units				
Initial Request	335	417	496	496
Approvals	166	308	352	376
Pending	120	13	38	14
Denied	49	96	106	106
-Staffing	-	2	2	2
-Records	-	3	3	3
-Rehab Director	19	15	15	15
-75% Rehab Case Mix	6	11	15	15
-Not a Distinct Part	12	29	31	31
-Other	12	36	40	40[2]
Reverification	N/A	N/A	113	223
Approvals			112	220
Denied			1	3
-Staffing			-	-
-Records			-	-
-Rehab Director			-	-
-75% Rehab Case Mix			1	1
-Not a Distinct Part			-	-
-Other			-	2
Total Number of Unit Exclusions	166	308	351[1]	373

N/A = Not Applicable

[1]One application withdrawn.
[2]Includes instances of not licensed (7), not operational (3), no orthopedic/prosthetic service (1), skilled nursing facility unit (1).

Source: HCFA/Health Standards Quality Bureau Reports of Exclusion Activity

Table 2-5

PPS Exclusions - Chronic-Disease Hospitals

	(Cumulative totals as of)	FY 1984		FY 1985	
		March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Initial Requests		98	103	108	109
Approvals		68	84	84	90
Pending		18	-	5	-
Denied		12	19	19	19
-Staffing		-	-	-	-
-Records		-	-	-	-
-Other		12	19	19	19[1]
Reverification		N/A	N/A	50	70
Approvals				49	68
Denied				1	2
-Staffing				-	-
-Records				-	-
-Other				1	2[2]
Total Number of Exclusions		68	84	83	88

N/A = Not Applicable

[1]Length-of-stay criterion was not met in 18 hospitals, 1 facility did not qualify as a hospital under Medicare certification requirements.
[2]Withdrawal of application by 2 hospitals.

Source: HCFA/Health Standards and Quality Bureau Reports of Exclusion Activity

Table 2-6

Excluded Hospitals and Units under PPS

(cumulative totals as of June 30, 1985)

	FY 1984		FY 1985	
	March 1984	September 1984	March 1985	June 1985
Specialty Type				
Children's	38	47	49	49
Psychiatric				
Hospitals	429	439	448	464
Units	380	722	737	762
Rehabilitation				
Hospitals	35	49	54	63
Units	166	308	351	373
Chronic-Disease	68	84	83	88

Note: 1984 figures do not include hospitals and units in the waivered States. The numbers for 1985 do include data for hospitals and units in waivered States that meet the criteria for excluded hospitals and excluded units under PPS. These data are phased-in according to the fiscal year start dates of the facilities.

Source: HCFA/Health Standards Quality Bureau Reports of Exclusion Activity

There are two further points about these numbers that need to be considered in research, analysis and policy development efforts. For one, not all hospitals and units that generically fall into these four specialty classes necessarily meet HCFA criteria for eligibility . For example, only 762 of more than 1,200 general psychiatric units of short-term hospitals have been granted an exclusion.[4]

A second point is that exclusion category status may not fully reveal the institutional characteristics or patient population served. For example, the exclusion process does not allow identification of a subset of patients that overlap exclusion categories (e.g., children's rehabilitation and children's psychiatric cases). Several of the approximately 30 children's psychiatric hospitals nationally could be included among the list of children's hospitals or the list of the 464 exempted psychiatric hospitals or both. There is also some anecdotal evidence that pediatric units in teaching hospitals have "reconstituted" as separate children's hospitals, while applying and receiving subsequent exclusions under PPS.

Another example is the chronic-disease hospitals, several of which primarily treat patient populations very similar to those in rehabilitation facilities, but which chose not to meet regulatory standards for exclusion in the rehabilitation category. Correspondingly, there is at least circumstantial evidence, from a cross-check of public and private sector hospital lists, that the list of excluded rehabilitation facilities contains hospitals and units that could qualify as chronic-disease.

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[4]Some hospitals/units intentionally do not comply with one or more exclusion requirements because of what they perceive to be favorable payment incentives presented by the PPS.

An examination of American Burn Association provider lists also further reveals that the excluded rehabilitation facility list may contain at least five or six freestanding burn centers, and five or six burn center distinct-part units that are part of larger institutions.

Available data on hospitals and units applying for and receiving exclusions under PPS rules and regulations warrant a certain level of scrutiny in subsequent chapters of this report. For example, what have been the incentives -- if any -- present, why or why aren't certain institutions "coming in," and what is the patient mix at these institutions?

Descriptive Statistics

Currently, descriptive statistical data on expenditures, length of stay (LOS), case mix, and so on are being tabulated by HCFA's Bureau of Data Management and Strategy. When available, a 5-10 page discussion using and presenting these statistics will be inserted.

Presently, Table 2-7 presents available information on Medicare and Medicaid expenditures, in both absolute and proportional terms. Because of the specialized nature of care delivered by excluded hospitals, and because of the Medicare benefit structure that is generally confined to the elderly (65 years and older) and to a

limited number of inpatient hospital days,[5] Medicare dollars expended for excluded hospital services are relatively small compared to other types of health services under Medicare, especially medical and surgical procedures in acute care delivery settings. For example, a relatively small part of overall Medicare payments are for psychiatric services. In FY 1981, about 2.4 percent of Medicare interim payments, or $995 million of the approximately $4.1 billion in total hospital reimbursements, were for psychiatric services.

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[5] Medicare was designed by Congress (and continues to largely function) as an insurance program for payment of medical bills during periods of acute illness. Briefly, coverage policies for health care expenses incurred by beneficiaries eligible under the Medicare program are divided into two parts: hospital insurance (Part A) and medical insurance (Part B). Development of a prospective payment system for excluded hospitals will impact almost entirely on coverage policies under Part A. Generally, when all program requirements are met, Medicare Part A will help pay for medically necessary in-hospital care. Following a hospital stay, coverage extends to medically necessary inpatient care in a skilled nursing facility. In addition, Part A covers all services customarily furnished in these settings, with the exception of such things as private duty nursing and "convenience items" (e.g., telephones). Part A also pays the full cost of medically necessary home health care.

Medicare hospital (Part A) benefits are paid on the basis of "benefit periods." A benefit period begins on the first day of coverage for hospital services and ends when the beneficiary has been out of a hospital or skilled nursing facility for 60 consecutive days. Following this 60-day period, a new benefit period begins should a beneficiary re-enter a hospital. Over a lifetime, the number of benefit periods is unlimited.

Within these individual benefit periods, Part A pays for all covered services for the first 60 days of inpatient hospital care, except for an up-front deductible (currently set at $492). For the next 30 days, Part A pays for all covered services except for a daily copayment amount ($123 per day). In addition, every person enrolled in Part A also has a 60-day reserve for inpatient hospital care which can be drawn from if more than 90 days are needed in a benefit period. As reserve days are used, Part A pays for all covered services, except for a daily copayment amount ($246 a day). Once used, reserve days are not renewable. A single but not insignificant variation to this benefit structure, though, concerns mental health care in a psychiatric freestanding hospital, for which there is an initial and daily deductible for the first 90 days, with a 190-day only lifetime limit. (This is discussed at greater length in Chapter 4.)

The differences in levels of expenditures and payer mix, could have pronounced implications for prospective payment policies relating to these excluded classes of hospitals and units. For rehabilitation facilities, for example, because Medicare is the single largest payer of rehabilitative care (Kane, et al., 1985), changes in Medicare payment policy will have a substantial impact upon their provision of care. For psychiatric, children's, and long-term facilities, Medicare payments constitute a considerably lower percentage of a provider's revenues. Only about 3 percent of expenditures for children's hospitalization, for example, come from the Medicare program. To the extent that Medicare constitutes a small portion of revenue for some facilities, possible concerns arise that inadequate payment levels could affect beneficiary access to those institutions, the quality of care provided upon admission, and the timing of the decision for discharge (see Chapter 3).

Sources and levels of public funding become expanded when coverage under Medicaid is considered. Children's hospitalization is the most dramatic example in which Medicaid patients can sometimes account for a majority of a facility's total revenues. Almost half (45.8 percent) of the expenditures on children's hospitalizations come from public sources, the most important of which is the Medicaid program. For chronic care patients, Medicaid is also generally the public program that shoulders any payment burden. To the extent that States adopt prospective payment approaches under their Medicaid programs, Federal PPS policies could serve as precedents for excluded hospitals and as such take on additional importance.

Table 2-7

Expenditures by Hospital Specialty Type

(dollar figures in millions of dollars)

	Children's	Psychiatric		Rehabilitation		Chronic-Disease
		Hospitals	Units	Hospitals	Units	
Medicare Expenditures	$500	$1,200	$160	$1,100	$134	$105
Proportion of total Medicare Expenditures	0.5%	1.2%		1.1%		.1%
Medicaid Expenditures	$2,000	N/A		N/A		N/A
Proportion of total Medicaid Expenditures	13.6%	N/A		N/A		N/A
Proportion of Hospital Revenues from Medicare	N/A	N/A		40% to 55% depending upon survey source		less than 10% on average
Proportion of Hospital Revenues from Medicaid	45%	N/A		N/A		N/A

N/A = not available at this time

In short, any consideration of implementing PPS for excluded hospitals could be a function, in part, of the absolute level of Medicare dollars involved, the relative rate of change in those payments in recent years, and the relative impact of PPS and other factors on Medicare payments to these facilities in the future. Medicaid utilization must also be included in the analysis of the Federal budget component, because HCFA is responsible for administering the Federal portion of that program, and because Medicaid programs may adopt the Medicare payment system.

Medicare's Current Payment Policies for Excluded Facilities: TEFRA Limits

An essential component to understanding excluded hospitals involves the current Medicare payment policies for these specialty classes. To an important degree, the current approaches and methods of payment influence behavior in the delivery of care by those facilities. Further, any consideration of a new payment system must be carried out in the context of how incentives might change in the transition from the current system.

From its inception, the Medicare program was based on a retrospective cost-based reimbursement system. This payment method for institutional providers was modeled after prevailing private insurance practices, and involved reimbursement for any reasonable costs incurred in the provision of covered care to Medicare patients. With the enactment of the Social Security Amendments of 1983, a large percentage of hospitals began to receive payment for individual cases according to the DRG-based price established prospectively. Specialty classes of hospitals and units excluded from PPS (or from a waivered-state alternative inpatient hospital payment system) continued to be reimbursed by Medicare on the basis of

reasonable and allowable costs -- although with some important modifications. These modifications stemmed from a number of provisions that have been introduced into the retrospective system over the years to contain costs.

Medicare's method of cost reimbursement was most significantly altered by the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 (P.L. 97-248). Prior to TEFRA, hospitals were reimbursed by Medicare according to a system of limits for daily routine occupancy costs, plus the reasonable costs incurred for daily special care (e.g., intensive coronary care) and ancillary care (e.g., respiratory therapy). Under TEFRA -- which took effect at the start of each individual hospital's fiscal year beginning on or after October 1, 1982 -- reimbursement limits were extended to total operating costs per discharge. This legislation effectively shifted established Medicare reimbursement limits from per-diem costs to per-case costs.

Upper limits for individual inpatient operating costs per case were established by Section 1886(a) of the Act, using an initial averaging of costs across the aggregate of cases treated in similar hospitals. "Similarity" of provider type was defined as belonging to one of seven Medicare-designated urban or rural bed-size classes. Medicare case mix was also taken into account. An early form of DRGs, utilizing Medicare stay files to develop relative cost weights, was used to create a case mix index for each hospital. This case-mix index collectively weighted each hospital's average costs per discharge to account for differences in patient populations. Cost adjustments were made for wage-index differences nationally, and adjustments to limits were made for indirect teaching. Upper limits were then set by the legislation at 120 percent of the average for FY 1983, 115 percent for FY 1984, and 110 percent for FY 1985 and each fiscal year thereafter. These

limits were calculated for each of the seven Medicare (TEFRA) hospital classes. Only sole community hospitals, new (i.e., under 3 years) providers, health maintenance organizations (HMOs), and rural hospitals with fewer than 50 beds were exempted from these limits. The enactment of the 1983 Social Security Amendments (P.L. 98-21) one year later, however, eliminated this section for cost-reporting periods beginning on or after October 1, 1983.

In addition to including a limit on all inpatient operating costs, the TEFRA legislation also established a "target" rate of increase (applied at the case level) that would result in reduced reimbursement if exceeded by a hospital, or an incentive payment if a hospital did not exceed its limit. Under 1886 (b) of the law, each hospital's growth in inpatient operating costs per case was limited during the first year by an amount reflecting the percentage increase in the hospital wage and price index plus a technology factor of one percentage point. For the second and third years, the TEFRA target rate was to have been the target of the previous year, increased by the hospital market basket plus 1 percent.

Under the 1983 Amendments, changes to the TEFRA target rate percentages as applied to the excluded hospitals were required to be established prospectively for cost reporting periods beginning on or after October 1, 1983. Subsequently, the Deficit Reduction Act (DEFRA) of 1984 (P.L. 98-369) further modified the target rate by reducing the 1 percent adjustment factor to 0.25 percentage points for hospital reporting periods beginning on or after October 1, 1984. Only new hospitals and risk-basis HMOs were exempted from these target rate controls,

though the TEFRA legislation provided that limits could be adjusted upward for providers under specified circumstances.[6]

In other words, the initial TEFRA legislation established for each hospital a "target" inpatient operating cost per discharge -- conceptually, a single DRG case-mix adjusted limit amount applicable to all cases. During the first year of its implementation, Section 1886(a) of the Act had initiated a national set of limits that no hospital could exceed (unless specifically exempted or in some form excepted through circumstance). Correspondingly, a second section of the bill, Section 1886(b), established a cost growth limit for future years. Each hospital's "target" became the lesser of the two limits. Since October 1, 1983, though, only the rate of growth ceiling provision has continued, and this was subsequently modified and made more restrictive by DEFRA.[7]

Importantly, the TEFRA legislation also provided for an incentive payment to hospitals that achieved operating costs less than or equal to its target amount. The

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[6]These special exceptions included "atypical services," "extraordinary circumstances," fluctuating populations, medical and paramedical education, more intensive routine care, essential community hospital services, unusual labor costs, and changes in case-mix. During hospital reporting periods beginning before October 1, 1982. For cost reporting periods beginning before October 1, 1983.

[7]Relevant prospective rate of growth ceilings are published quarterly in the Federal Register.

incentive payment would be the lesser of one-half the difference between actual and target costs per discharge, or five percent of the target amount. This incentive has continued, and is currently applied to excluded hospitals.

Finally, for hospitals whose operating costs per discharge exceeded their targets, TEFRA provided for reimbursement of up to 25 percent of the allowable operating costs in excess of the target amount. This provision applied to cost reporting periods beginning before October 1, 1984; since then, the target has been the maximum amount--a further efficiency of the initial TEFRA limit approach.

The implication is that the present Medicare method for reimbursing inpatient hospital care to beneficiaries in excluded facilities can be termed a form of reasonable operating costs per discharge. With the initial formulation of TEFRA regulations, psychiatric facilities could often be determined to exemplify facilities providing "atypical services." The TEFRA legislation had no special provisions for children's, rehabilitation, or chronic-disease facilities. At present, none of the excluded facilities receive special upward adjustments, but rather are subject to the Medicare operating cost per discharge target amount rules.

The transition from per-diem occupancy costs to total operating care cost limits, coupled with the incentive payment provided to hospitals that contained costs under the prospectively-determined limit, generated much greater incentives for providers to be efficient than did former Medicare limits on routine daily occupancy costs. And while the TEFRA limits have meant that excluded facilities do not participate PPS, they still arguable function under a prospective limit based

system that utilizes similar economic incentives to those of PPS.

But while TEFRA limits provide incentives similar to PPS for per case efficiency and similar limits on inflation of prices, the TEFRA incentives for hospitals to curtail costs are weaker than those of PPS because TEFRA offers less reward for such behavior. Furthermore, while TEFRA and PPS payment policies share several system design features, there are also several significant structural differences that distinguish the target amount per case payment approach from Medicare's established PPS rates (or prices) per case in acute-care settings (see Table 2-8).[8] First, the TEFRA target amounts are largely "hospital-specific," whereas PPS utilizes a blend of hospital-specific and Federal and regional standardized payment amount factors. Second, the maximum incentive payment for hospitals that hold costs within TEFRA targets is 5 percent of the target operating costs per case. The PPS, on the other hand, places no ceiling on any between prospective payments and costs. Third, changes in case mix are not taken into account after the TEFRA base year, while PPS automatically adjusts for case mix changes as they occur. Fourth, TEFRA has no special provisions concerning exceptionally lengthy or costly cases, while PPS has an explicit additional payment method for such cases.

The overall degree of effectiveness of TEFRA incentives will depend, to some degree, on the proportions of payment by Medicare to excluded classes of hospitals and units. Each of the design distinctions, however, works to compromise

[8]Also, see Chapter 3 for a discussion of the design features of the Medicare PPS.

incentives for improving efficiency in the delivery of needed health care, in comparison with a prospective pricing system such as the PPS. As a result, excluded facilities can be expected to have, for example, smaller length-of-stay reductions and perhaps smaller reductions in special and ancillary care than are found in facilities under PPS. Operating surpluses will be correspondingly less than those being generated by providers under PPS. Similarly, case-mix index (CMI) ratios will be somewhat equivalent to (or even less than) those of their base year -- in contrast to recent CMI growth under PPS. A very clear implication, then, is while TEFRA limits will restrain the rate of growth in expenditures by excluded hospitals, a PPS system could encourage more efficient behavior and promote better access for Medicare beneficiares.

Discussion

This chapter has provided background and discussion on a number of topics that characterize and define excluded hospitals. These include the legislative history, the exclusion and reverification process, and levels and proportions of expenditures under the current TEFRA-based reimbursement system.

Table 2-8

Medicare Payment System Design Features: TEFRA and PPS

	TEFRA Operating Cost Per Case Targets	DRG Prospective Payment (PPS)
Differences		
Determination of Costs Limits	Hospital Specific (Generally)	Approaching National Averaging
Case-Mix Payment Adjustment	Base Year Only	Ongoing/Automatic
Medicare Operating Surplus to Provider	Limited to 5% of Target Amounts	Unconstrained/No Limit
Malpractice Costs	Excluded from Limit	Included in Price
Outlier Cases	Included In Averages	Additional Payments Provided

Similarities

- Discharge is unit of reimbursement/payment
- Special care and ancillaries, as well as routine occupancy costs, included in the limits/standards prices
- Payments adjusted by "pass-through" for direct costs of medical education, capital costs, kidney acquisition, outpatient care, nonphysician anesthetists
- Standardization for wage index differences
- Adjustments formula for indirect costs associated with conducting general medical education
- Hospitals may receive Medicare payments in excess of actual costs
- Target amounts/prices known before the year to which applied

* Initially, based on seven TEFRA groups defined by characteristics such as bed size and urban/rural location, and rate of increase applied to hospitals over costs. Currently, only rate of increase provisions apply.

Perhaps most importantly, this chapter, in its discussion of payment under TEFRA, also establishes that TEFRA currently limits per-case expenditures and the annual rate of increase in costs for care in these facilities. Likewise, TEFRA incorporates payment system design features and behavioral incentives for the efficient delivery of care that are similar to the PPS for acute-care hospitals.

Still, this current system of limits must be perceived as beneficial only in the context of transition. As a permanent system, it is deficient in several important ways. Opting for a prospective payment system based on prices per case rather than limits might offer a number advantages for both HCFA and excluded providers.

The first and most obvious advantage would be longer-run cost control and efficiency. As already discussed, TEFRA incorporates incentives for efficiency that are probably much weaker than those under a PPS, because hospitals cannot currently share in surplus revenues. Hospitals could -- at least theoretically -- gain more under PPS, as all savings (surplus) accrue to the individual hospital with this payment approach. Moreover, efficient hospitals would be rewarded and poorly managed hospitals penalized, unlike the present situation. Likewise, HCFA could become a more prudent buyer by moving excluded facilities to some type of PPS. Since in the long run savings resulting from increased efficiencies would be realized. Such savings will probably accrue under TEFRA.

A second advantage would involve greater flexibility. As with acute care services, facilities across these four specialty types could realize greater flexibility in spending a fixed payment rate such as is provided under PPS. The ability to extend coverage for certain services, or substitute more cost-effective approaches (e.g., outpatient services in psychiatric care), could be welcomed by providers. Another flexibility issue relates to the TEFRA regulations under which excluded facilities will continue to operate -- those regulations provide almost no opportunity for historically under-funded facilities to achieve a more equitable reimbursement under Medicare. Certainty of revenues could also promote more rational planning and cost-effective delivery of excluded services.

A third advantage would involve program compatibility and integrity. Under TEFRA, some variation in payment according to institution type and geographic location is maintained, though individual hospitals do have incentives to become more efficient.

Similarly as long as these excluded service classes have alternative ways to be covered, hospitals and distinct-part units will have some leeway to shift between (or among) them, and can be expected to select the status that brings the best payment. As previously noted, this would already seem to be occurring in regard to a variety of psychiatric units in general hospitals, which were able to choose whether to be excluded. Likewise, there is some evidence of "movement" by facilities treating pediatric cases and rehabilitation patients. There are also features of the regulations (the application process and absence of limitations) that permit this behavior to continue.

Of course, to move from a TEFRA-based payment system will not necessarily be prudent unless a technically developed and feasible prospective pricing system with which to replace it is available and able to be implemented. Thinking about the development of such a system is the subject of the next chapter.

Chapter 3

DEVELOPING A PROSPECTIVE PRICING SYSTEM FOR EXCLUDED HOSPITALS

Introduction

The development and implementation of the Prospective Payment System (PPS) in the early 1980's for acute-care hospitals was intended to create financial incentives that encouraged the efficient use of resources while maintaining high-quality inpatient care. Within the context of this overall objective, the Department, at the outset, established several additional goals for the reform of the Medicare payment mechanism, reflecting 16 years of experience with cost-based reimbursement and 10 years of extensive experimentation with various payment alternatives. These goals were as follows:

- The system should continue to ensure beneficiary access to quality care.
- It should be easy administer;
- It should be capable of being implemented quickly;
- It should ensure predictability of government outlays;
- It should help hospitals attain predictability of their Medicare revenues;
- It should establish the Federal government as a prudent buyer of services;
- It should provide incentives for hospital management, flexibility, innovation, planning and control;
- It should reduce the hospital cost reporting burden; and

These goals and objectives are similary important in thinking about the design and implementation of a new payment or "pricing" system for excluded facilities.

Any critical deliberation of the relative merits of new legislative and regulatory options a framework or set of values for deciding what constitutes a satisfactory system. Logically, these goals and objectives become the very criteria for evaluating the effect of such a payment system. Because any payment system will have a financial impact on not only the payer, but the patients and the institutions receiving payment, the goals and concerns of each of these groups must become the criteria for evaluating the effect of a payment system.

The payer, the Health Care Financing Administration (HCFA), on behalf of taxpayers and patients, is concerned that a PPS for excluded facilities promote a cost-effective system of inpatient care. HCFA relies on the incentives within a PPS to attain its goals. Cost effectiveness of the health care system that promotes an appropriate level of quality care thus becomes a first important criterion by which to judge payment reform.

Hospitals, the institutions receiving payments, are concerned that the level of payment be based of patient need and be adequate to provide quality care as they see it, and that the payment system not capriciously redistribute resources among institutions. This would unfairly damage the financial health of some institutions and likely lead to discrimination against providing care for some patients. A second important criterion is thus the fairness of the system in structuring payment to hospitals.

In light of these system goals, objectives and criteria, the several parameters that would determine how the system functions must be specified. The methods and tasks for constructing and choosing the design features of a new payment

system for excluded facilities is the subject of this chapter. It includes a discussion of the design features of the present Medicare PPS, and an analysis of the unique issues that must be considered in a payment system for excluded facilities.

The clear direction of research over the last 3 years pertaining to excluded facilities has been the design and development of a case-based system of prospective pricing for those hospitals and distinct-part units. To fully realize such an objective, there are at least four fundamental tasks that must be addressed and undertaken. These include:

- The collection of data and other information to provide an analysis of the existing service delivery system of excluded facilities. The use of resources (dollars spent) must be understood in terms of its relationship to variables describing the nature of patients, providers and resources. The pattern by which these resources are consumed over the course of an episode of care must further be understood.

- The feasibility of a classification system for patients served by these excluded facilities that could be utilized as the basis for a case-based prospective payment in ways that are similar and compatible to DRGs under PPS. Case-mix, defined by the DRG system, is used as the measure of the hospital's product for purposes of payment under PPS. A classification system is essential to operating a prospective pricing system based on a per-case payment, since the classification of the case determines the payment. The definition of any outlier cases --

unusually lengthy or costly cases -- must also be considered. This is particularly important if the classification scheme does not completely reflect differences in treatment requirements across patients.

- Alternatively, carefully described payment systems for excluded facilities must be developed, as classification systems can only be evaluated in the context of a payment system. Specific features that must be examined include not only the unit and mode of payment (e.g., per day, per case, per episode of care), but the delineation of behavioral incentives created by the various alternatives. All of the objectives of the participating groups that will utilize the payment system must be described and made explicit. Any factors to modify or adjust the basic system to recognize differences among providers or special aspects of care must be considered. These factors include urban or rural location, teaching status, ownership, proportion of public or poor patients, and other characteristics which may modify the costliness of care for like cases treated in different facilities.

- An impact assessment of the redistributional outcomes for affected parties and of other aspects of the delivery systems must be performed. What are the consequences, both intended and unintended, for the structure of the health care delivery system? Will data/administrative changes be necessary, and will additional changes in policy be necessary?

What follows is a fuller, more complete discussion of each of those steps as they relate to the development of a PPS for excluded facilities. Issues that need to be addressed in considering a revised payment system for these hospitals and units are reviewed and criteria relevant for guiding progress through each of these tasks individually are put forward.

Exisiting Delivery System Issues

There are several issues that distinguish these specialty classes from acute care hospitals that must be carefully considered in formulating a payment system that adequately reflects the resources for excluded services.

The construction of any fair and equitable case-based prospective system must necessarily begin with a consideration of the types of patients receiving treatment in the facilities under consideration. For the specialty hospitals in this Report an initial profile of the types of patients receiving treatment in these facilities is needed. By extension, the kinds of services needed by these patients and the nature of medical (and other) conditions that lead to the range of specialized services across these four types, must be established and clarified.

Patient Types.

Not surprisingly, the types of patients receiving care with this disparate set of hospital classes are numerous and complex. For payment purposes, however, a framework can be utilized to compare and contrast patients. Conceptually, patients typically treated in the four excluded classes of facilities fall into two broad categories of needed care:

- o acute or "well-defined" treatment needs; and

- o more long-term treatment approaches, reflecting (generally) more chronic care needs.

What differs across these four specialty facility classes are, of course, the clinical reasons for admission, as well as the mix of acute versus long-term treatment needs. For example, the greater part of the case load of children's hospitals involves the diagnosis and treatment of acute diseases and conditions. The process of pediatric hospital care for many patients is, in fact, probably closer to the acute, paradigm of care than that of the other three excluded hospital types. Often the clinical goal is to minimize lengths of stay in order to reduce the stress of separation from parents. The purpose of hospitalization is also the same: to diagnose disease, then treat it. The services rendered thus can parallel those in adult acute settings, with a heavy physician emphasis and reliance upon diagnostic and therapeutic technologies. However, there are certainly notable and important differences from adult institutions. For children, diseases of aging (e.g., cardiovascular disease, cerebrovascular disease) are infrequent, while acute, self-limited illnesses, such as viral respiratory infections and gastroenteritis, are common. Clinical presentations in children also tend to be different than in adults. For example, juvenile-onset diabetes raises different clinical issues than diabetes occurring in an adult population.

In rehabilitation hospitals, stays may be longer and the emphasis of care can be on the treatment of functional limitations and social limitations ("disability"), whereas acute medical services are primarily concerned with pathology and

temporary impairment. The end point of an admission may not be a specific clinical event so much as the consensus of a multidisciplinary provider team that treatment goals have been optimally achieved. Still, a high percentage of patients -- especially Medicare patients -- enter the hospital with a confirmed diagnosis. Conditions such as stroke, hip fractures, and arthritis can often be treated in relatively short, well-defined and replicable periods of time.

Similarly, acute psychiatric care is frequently found in distinct-part psychiatric units in general community hospitals. As Chapter 4 discusses in greater detail, the type of patient, and especially the type of care appears to correlate highly with treatment setting in psychiatric care. The delivery system in this excluded class presents itself as highly differentiated in that there is a tendency for long-stay patients to be treated in State/county hospitals, short-stay patients in psychiatric units of general hospitals, and private psychiatric hospitals to occupy a "middle ground." What makes this excluded class more problematic, however, is the unknown degree -- perhaps more so than other areas of medical care -- to which differences in treatment instructions and approaches reflect true patient need or different styles of practice of providers. In psychiatry, there is a much larger divergence of philosophies about how to treat a given patient.

At the same time, these four specialty classes of hospitals are characterized by patients needing either intermittent care at regular intervals over long periods of time, or continuous care reflecting states of relative patient disability. Such examples range from pediatrics with severe congenital diseases, to the mentally disabled in psychiatric hospitals, to the respirator-dependent patients in chronic disease hospitals.

About 10 percent of the psychiatric admissions for Medicare beneficiaries are for patients under 65 who are eligible because of permanent disability. The bulk of this group is presumably composed of individuals who may reasonably be described as chronically mentally ill. In addition, it appears likely that 5-10 percent of psychiatric use by those over 65 is by individuals who became permanently disabled before 65. These two groups probably qualify as chronically mentally ill.

For pediatric cases, there are a number of specific childhood diseases or conditions for which the acute, intervention model does not hold. Certain genetic diseases (e.g., cystic fibrosis, muscular dystrophies), congenital cardiac and gastrointestinal tract deformities, childhood malignancies (particularly leukemias), and a number of other presentations may require prolonged stays, with periodic/continual active intervention and physician involvement. There are between 7.2 and 10.8 million American children (10-15 percent of all children) with some type of chronic impairment. Of these, between 1 and 2.8 million have conditions sufficiently severe to limit their daily activities significantly (DHHS, 1983). These impairments necessitate repeated and varying treatment levels. One study, by Zook, Savickis, and Moore (1980) found that, of patients repeatedly hospitalized, 37.6 percent of the patients in the children's hospital examined over 1 year were repeatedly hospitalized for the same disease (RHSD). Over a 10-year span, 50.5 percent of the patients fell into the RHDS category. Among the 20 percent of the patients who had the highest costs during the year, 69.5 percent were in the RHSD category; 43.8 percent of the higher-cost patients had congenital defects (Zook and Moore, 1980).

Especially for rehabilitation and chronic-disease facility patients, measures of levels of chronicity and the need for intermittent or continuing care represent a good initial approach to classification of a larger number of patient treatment needs. A substantial number of rehabilitation patients, and -- almost by definition -- the great majority of chronic-disease hospital patients, can be expected to be on the upper end of a spectrum of disability. They are severely impaired, requiring a high level of nursing attention or technological support (e.g., chronic ventilator dependence).

For rehabilitation services, treatment goals are often more appropriately set within the context of functional level. In an elderly rehabilitation population, the presence of comorbidities may interfere with pursuit of active, intensive or rehabilitation. Furthermore, their diseases may be chronic and progressive. Thus, rehabilitation may be required at several different times. At some point, progress toward functional goals may become clinically unreasonable (e.g., a stroke patient with multi-infarct dementia, who is severely cognitively impaired). These patients may more appropriately require a chronic custodial care setting.

Similarly, chronic disease hospitals depart from the acute episode intervention model. The purpose of hospitalization may often be viewed as palliative, not curative. The clinical endpoint of these admissions is not clear-cut. Patients often enter these hospitals with multiple diagnoses (e.g., cardiovascular disease plus diabetes plus severe obstructive pulmonary disease) or a single catastrophic diagnosis (e.g., muscular dystrophy). Diagnostic efforts during hospitalization are directed only towards acute "flares" within more chronic presentations. Treatment is similarly constrained to a more limited scope than in acute care settings.

Patients may, on occasion, be treated for the same acute processes (e.g., infections, heart or renal failure), but generally the decision has been made not to adopt more aggressive interventions (e.g., surgery) should the patient's situation deteriorate.

Transfer and Referral Patterns

It is precisely at the point where patients require significant, and continuing amounts of medical care that excluded facilities become important. Over the last several decades they have developed as a specialized response in the evolving patterns of multi-leveled care systems. Excluded hospitals and distinct-part units cannot be viewed in isolation, but rather as a part of highly differentiated care systems in this Nation in which different hospitals have different roles. For reasons pertaining to both efficiency of resources and quality care, patients diagnosed as requiring greater than average treatment needs are more often than not systematically transferred or referred to a few specialized facilities.

In psychiatric care, almost twice as many patients are discharged to another inpatient facility in the mental health system as in the general health care system (25 percent versus 12 percent). As previously noted, there is also a tendency for long-stay patients to get to State/county hospitals, short-stay patients to get to psychiatric units of general hospitals, and private psychiatric hospitals to occupy a "middle ground."

For rehabilitation services, most patients admitted to rehabilitation hospitals and units are referred from other hospitals. A 1981 American Hospital Association

(AHA) survey of inpatient rehabilitation facilities reports that about 2/3 of referrals came from other hospitals, while another 10 percent came from within the hospital (Mullner, et al., 1983). For self-contained rehabilitation hospitals and units, primary referral sources were, respectively, other hospitals within the larger medical center and other sections of the hospitals of which they formed a part. Referrals from home accounted for less than 10 percent of all admissions, while nursing home referrals accounted for only 2 percent of admissions. A 1984 National Association of Rehabilitation Facilities (NARF) survey (1984) documented referral patterns similar to the AHA survey.

Rehabilitation care is further characterized by interruptions and by conditions requiring acute care -- either a recurrence of the underlying problem creating the disability being treated or a new condition or complication. Acute care may be provided in the same facility if rehabilitation is being given in a defined unit of an acute care hospital or the patient may require transfer to an acute care hospital. The differing rate of discharge from the defined units to acute care hospitals may result from a different case-mix, from the ability to provide acute care services within the facility, or a difference in how a discharge is defined. The extent to which patients who are discharged to acute care hospitals are readmitted to rehabilitation facilities is not well known and the extent of outpatient rehabilitation care or home health services provided to patients who are discharged to the home is not well-documented.

Chronic-disease hospital patients are transferred to acute care settings for surgery, intensive care unit treatment, and so on. There are also chronic-disease

hospital patients discharged to facilities providing lower levels of care and to their home.

For children's facilities, regionalization of pediatric services (such as perinatal services, cardiac surgery, end-stage renal disease treatment, cancer treatment, and multiple congenital malformation) has been promoted nationally as a means of attaining economies of scale and assuring quality of care in settings of appropriate level (National Foundation -- March of Dimes, 1976).

Effective regionalization requires appropriate transfer of severely ill children "up" (from general to tertiary level facilities) and of less severely ill children "down" (from tertiary to general hospitals). Under the current reimbursement system, there is a tendency "to transfer in a unidirectional manner only to a higher level of care; lower-risk patients to less intensive and less costly settings may not occur at all" (Kessel, 1981). There are financial barriers to transfer in both directions, such as regulatory obstracles to inter-county reimbursement (Kessel, 1981). In spite of the obstacles to "down" transfers, neonates transferred out of children's hospitals (DRG #385) are the second most frequent pediatric DRG. One study of a Neonatal Intensive Care Unit (NICU) in Utah found that 47 percent of admissions were infants transferred back to secondary hospitals (Bose, et al., 1985).

Overall, it is important to recognize early in the policy development process that one common denominator in understanding why these facilities may not "fit" the present DRG system is that they are parts of highly differentiated treatment systems. As some transfers or selective admissions are observed, differentiation exists that may cause problems to a PPS system. Likewise, the greater the degree

of differentiation, the greater the amount of trouble. To the extent that transfers are made to and among other hospitals, it is difficult to capture the clinical judgment leading to those transfers in a DRG or other system. As Bachofer (1984) and others have suggested, the delivery system may prove more complex than originally thought. To the extent that a clinically appropriate set of referral relationships exists among providers, and those referral arrangements are not reflected in either a DRG-type system or the way prices are set, the "consequence of moving to an averaging system may well be the destruction of referral relationships," as well as an efficient differentiated care system.

Cross-Subsidization of Services

A last characteristic that distinguishes excluded facilities involves specifically children's hospitals, rehabilitation distinct-part units, and psychiatric facilities (especially State/county institutions), and possible cross-subsidization of services. For children's services, the question has been raised as to whether or not pediatric charges in general hospitals or tertiary hospitals with pediatric units are subsidized through shifting some of the costs from children's to adult services. This could result in the charges for pediatric cases in those hospitals being lower than those in children's hospitals, which cannot shift costs from adult services.

If this is the case, and if prospective prices or rates are developed based on average charges, hospitals specializing in pediatric services, which do not benefit from such subsidies, may not recover their true operating costs and may be financially penalized by an average pricing system.

Cost-shifting can occur in one of three ways: a hospital can increase charges to charge-based payers to generate revenues to cover shortfalls that may occur because some payers have restrictive definitions of allowable costs; the hospital could price individual services in such a way that the cost apportionment process results in more costs being apportioned to selected payers; and it can allocate costs in the stepdown process in such a way as to maximize reimbursement. For such cross-subsidization to be worthwhile to the hospital, two conditions would have to hold: the payer mix for pediatrics would have to be less favorable than the payer mix for the hospital as a whole,[1] and pediatric services would have to be capable of being isolated for special treatment.

Second, it is important to note that the Medicare cost report, which is the basis of the calculation of the present DRG cost weights, allocates and apportions costs to departments and ultimately to DRGs based on accounting costs, derived according to the stepdown method, and not on the basis of charges. Thus, the simple comparison of the charges of pediatric tertiary and other hospitals may not be sufficient evidence of the existence of subsidies. Cross-subsidies could occur, however, if the averaging of (higher cost) pediatric charges for routine care and/or ancillary services were averaged with (lower cost) adult charges for routine care and ancillaries.

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[1]For a discussion of the evidence concerning this to date, the reader is referred to the section "Children's Hospitals and Pediatric Hospitalization" in Chapter 4 of this Report.

Classification System Issues

Procedurally, the present DRG payment system classifies a hospital case at discharge into one of 23 Major Diagnostic Categories (MDC) on the basis of the principal diagnosis. Once assigned to an MDC, the case is then further assigned to one of 468 DRGs on the basis of presence or absence of certain procedures, age of the patient, specific principal diagnosis, presence of absence of a significant comorbidity or complication, and in a few cases, whether the patient died or was transferred to another hospital. For reimbursement there is an additional "waste basket" for cases with surgery that is inconsistent with the principal diagnosis.

The DRGs were developed at Yale University by John Thompson and Robert Fetter under funding from the Health Care Financing Administration (HCFA) and utilize clinical judgment in concert with statistical analysis of a large number of hospital discharges.

Evaluative Criteria

It is important to properly recognize the role of the classification system in promoting a cost-effective system. To some extent, the provision of care is independent of a classification system in a PPS. Given a set amount of prospective payment, any classification system would present a facility with the same financial incentives to provide care as efficiently as possible.

There are, however, two qualifications to this argument. First, the classification/payment system will determine the overall level of payment to a

hospital. Even though incentives are the same, a hospital struggling to meet its budget may behave differently than one in surplus. The threat of loss may be more of an incentive than the lure of gain. Hospitals subject to systematic losses under a classification system may be tempted to reduce levels of care inappropriately.

Second, the financial incentives at admission for particular types or classes of patients will be affected by the classification system. To the extent that the resource needs of a patient can be foreseen prior to admission, a patient may be tagged as a likely money loser. How easily patients can be so identified will depend on the classification system. A system that differentiates between patients with greater or lesser resource needs reduces the likelihood of discrimination at admission.

In addition to the incentive to minimize treatment, the PPS for acute care facilities introduces an incentive to manipulate the classification system in order to increase reimbursement. This "gaming" of the system can undermine cost containment objectives. The classification system will determine "gameability" of any PPS, and relates to the problem in two ways. In the first place, a classification system based on selective criteria is easier to game. According to Jencks, et al. (1984), there is consensus that a classification system should place minimum emphasis on "ambiguous information" that could be gamed.

A second way that a classification system affects gameability relates to its level of "fineness." The more categories there are, the more opportunities to move patients among groupings. By adding categories (for example, a severity modifier to a DRG), any regrouping that was previously possible remains possible, and some

new opportunities are created. The "manipulability" of a classification system must be considered as an important dimension of evaluation.

Lastly, a classification system should group patients in a "clinically meaningful" way -- in accordance with the way clinicians view the condition of the patient or the technology of treating the patient. In Hornbrook's (1981) terminology , a system must be "acceptable" to those required to implement it. Clinicians are most accustomed to grouping patients on the basis of a diagnosis -- a description of the disease. In addition, a clinically meaningful system of grouping will probably be better able to withstand changes in technology. Other classifications based on management strategies or treatment requirements may be meaningful as well.

Selecting Appropriate Measures

Excluded facilities can be characterized by their care for conditions whose treatment requirements are not well-described by diagnoses and procedure codes (or, in the case of children, are not well described by adult diagnoses.) For example, children have different diseases than adults (or different clinical presentations of the same disease) and can require different types of treatment, which may render a case-mix system for adults largely inapplicable to children. There are congenital diseases, which are by definition childhood diseases -- some of which result in death before adulthood and are therefore unknown in adult medicine (such as Hunter's syndrome and cystic fibrosis). Then there are diseases that are associated with certain developmental stages that are confined to childhood (such as Sudden Infant Death Syndrome). Other diseases are found in both adult and pediatric populations, but the incidence is much greater in the latter (such as

asthma). Lastly, the fact that children's illnesses often present not only differently from adults, but in a fundamentally more enigmatic fashion because of children's lessened ability to verbalize symptoms, may be reflected in higher diagnostic costs compared to adults.

In mental health, functional status/chronicity measures can be as important in properly classifying psychiatric services as diagnosis. For example, individual needs may be defined clinically in terms of diagnosis, level of impairment/disability, and treatment requirements. This is closely analogous to the medical-surgical system. But in the mental health system, needs are also defined socially, in terms of the patient's ability to cope with the social demands of living in sheltered or unsheltered environments, and legally, in terms of the need of the patient and society to be protected from harm that the patient might cause. Although behavioral problems and impairments of ability to cope may result from neurologic and other diseases, such results of other diseases are defined as psychiatric problems, given psychiatric diagnoses, and treated in psychiatric settings. Such problems can require patient-interventions that are less definable and long-term than in the medical-surgical system.

Similarly, for rehabilitation and chronic-disease facility patients, measures such as functional status or levels of chronicity may provide as good or better an approach to classification for case reimbursement as diagnoses. As previously noted, chronic-disease hospital patients are on the upper end of a spectrum of disability. For rehabilitation services, patients with different pathologies leading to similar disabilities may form a more homogenous group than patients with the same diagnosis, who may span the treatment requirement spectrum.

Measures other than -- or in conjunction with -- diagnosis, may therefore, provide as good or better an approach to classification for case payment on a prospective basis. These might include such measures as functional status on admission, living situation, and general levels of social support.

Payment System Issues

PPS pays hospitals for care to Medicare beneficiaries at a per-case rate, which is set before care occurs and reflects the costs of care patients are expected to need rather than the costs for care the hospital actually provided. The transformation to PPS from cost-based reimbursement was actually composed of two separate reforms:

- paying for the case rather than for individual services (paying for larger aggregations of services has been termed "bundling"); and

- determining the payment from a schedule published before care is rendered (prospective payment).

It is helpful when considering a payment system issue to conceptualize prospective payment as being cost sharing by providers. By paying only a prospective amount, HCFA requires the hospital or other provider to fully bear the excessive treatment costs. The hospital was "fully insured" for nearly all costs under retrospective cost-based systems. PPS radically changes the incentives to provide treatment by requiring full cost sharing of excessive costs.

How well prospective payment works to promote cost-effective care depends on hospital response to the change in the method of reimbursement. PPS is intended to reduce the supply of inappropriate care during an episode. Preliminary evidence is that this is occurring. The 1984 Annual Impact Report to Congress describes observed reductions in LOS and admissions in the partially phased-in system. How much response is "enough" and how much is "too much" is, of course, a very difficult question.

A critical determinant of hospital response to the payment system is how the hospital balances its financial interest in net revenues against the patient's interest in treatment. Under a cost-based system, the patient and provider shared a general interest in more treatment -- the patient for more care and the provider for more revenue. This alliance is struck down by PPS. The more care a hospital provides under PPS, the less net revenue it retains.

The elements of design of the present PPS can serve as useful guides for constructing a system of prospective case-based prices for excluded facilities, especially as the impact of the new system is increasingly understood and refined. It is briefly reviewed here.

PPS Design Features

Once a case has been classified to a DRG category, operating payment is determined by a standardized payment amount, which represents the average operating cost for typical Medicare inpatient stay, multiplied by a weighting factor

- outlier adjustments

Medicare adjusts per-case payments to reflect a number of hospital-specific factors. The most important adjustments, however, are those applied on the basis of factors that are thought to reflect or influence differences between the kinds of inpatient cases seen in different hospitals. Two important adjustments are applied at the hospital level -- the urban-rural adjustments and the teaching adjustment. Both of these adjustments are highly empirical and there is little consensus regarding their theoretical underpinnings. Three other kinds of adjustments are also notable and are discussed here.

- Urban-Rural Differences. The urban-rural adjustment is based on available evidence that per-case costs, after adjustment by DRGs, are substantially lower (___%) in rural areas. This may be due to lower costs of doing business, referral of more difficult cases within DRG categories to urban medical centers, use of simpler technology and treatment methods, or other factors. The PPS standard payment as a result is higher in urban areas. Though hospitals are dichotomously divided into urban and rural hospitals under PPS, there is likely to be a continuum between the urban and rural hospitals, not captured by this procedure even if the basic underlying typology of urban and rural hospitals is appropriate.

- Indirect Teaching Costs. The teaching adjustment is made by increasing the per-case payment -- the current rate is 11.6 percent for each tenth of an intern or resident per hospital bed. This rate is double that originally recommended by the Secretary's December 1982 Report to Congress.

Legislation to reduce the current 11.6 percent rate is pending. The evidence as to whether the observed costs that provided the basis for this adjustment result from higher costs of doing business, receipt of difficult referred cases, use of more expensive technology and treatment methods, wasteful activities undertaken in the interests of teaching, legitimate educational functions or other factors, is mixed. However, the December 1982 Report to Congress asserted that teaching hospitals justifiably receive additional revenues due to demands their case load places upon them that are unaccounted for by DRGs. To some extent, the teaching adjustment also accounts for the higher proportion of poverty patients treated by teaching hospitals.

o Labor Costs and Other Accounting Considerations. The standard payment is adjusted to reflect the local cost of labor. Errors in determining labor costs could, of course, create errors in hospital payments that might be confused with errors due to the case mix system. Adjustments for labor costs are made as if there were sharp boundaries between areas in which labor costs were homogeneous; in fact, labor costs obviously vary more continuously. Capital costs are handled outside of PPS, as are the direct costs of (paying interns and residents); costs of supplies and equipment are assumed to be nationally uniform.

o Regional Differentials. The regional differences that exist, and have been well-documented, are thought to result from regional variations in efficiency or unnecessary regional variations in treatment practices. As already noted, regional rates are scheduled to be phased-out for payment

purposes by 1987. But the sources of these differences are not completely understood, and they may represent factors such as differences in patterns of illness, that might be appropriate bases for payment.

- Excluded/Exempted Hospitals. Finally, a number of hospitals are excluded/exempted from PPS on the basis of hospital characteristics. These include the four classes of hospitals and units that are the focus of this Report, alcohol and drug units, and other types of exempted hospitals, which are accorded special treatment under PPS, such as sole community hospitals, cancer treatment and research hospitals, and regional referral centers.

In addition to hospital-level factors , PPS makes special additional payments for "outliers" -- patients with unusually costly or unusually lengthy stays. The Social Security Amendments of 1983 required that 5 percent of payments under PPS be made through a system designed to account for "outlier" or unusual cases. This was implemented through a relatively simple way of identifying and paying for outliers; namely, for each DRG, a threshold length of stay was identified.[2]

All necessary inpatient days above the length of stay threshold are reimbursed at a flat per diem rate, which is 60 percent of the average payment per day for

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[2] The threshold was originally defined as either 20 days or 1.94 geometric standard deviations above the geometric mean length of stay, whichever was less; the calculation was performed on data from which cases 3.00 geometric standard deviations above the geometric mean had been removed. Subsequent revisions to these threshold criteria have been made in order to attempt to maintain outlier payments within the 5-6 percent range of total payments.

patients assigned to that DRG. In addition, the outlier policy made allowance for patients who had very high bills but did not exceed the length of stay threshold. For these"cost outliers," PPS originally paid 60 percent of estimated operating costs[3] in excess of 1.5 times the Federal prospective payment rate or $12,000, whichever is greater. Subsequent revisions to those cost threshold criteria have been made in order to attempt to maintain outlier payments within the 5-6 percent range of total payments.

It is lastly important to discuss the way that transfers are handled under PPS, as they may be particularly important for excluded hospitals. It was previously pointed out that excluded facilities are part of highly differentiated treatment systems, and historically a substantial proportion of discharges from excluded hospitals have been to other institutions. Only part of the discharges to other institutions meet the definition of a transfer under PPS. Transfers occur when a patient is moved from a short-term acute hospital paid under PPS to another such hospital. When a patient is transferred between such hospitals, the transferring hospital will be paid a per diem amount for each day of the hospital stay, and the receiving hospital will be paid the full DRG rate. No payments in addition to the regular DRG rate are made for patients transferred from one inpatient area or unit of a hospital covered under PPS to another unit within the same hospital.

Overall, the design features of the present PPS should serve as useful first markers in developing a payment system for excluded facilities. To the extent that

[3]Operating costs are estimated to be 72 percent of covered charges.

the present system works to promote cost-effective and high-quality care, these features can further provide lessons concerning an appropriate method and unit of payment, as well as the need to adjust for differences in various characteristics across these classes.

Impact Assessment Issues

Payment systems have had a major impact on how and where care is provided. The development and proposal of any prospective payment system for excluded facilities will raise a number of concerns about its cousquences for providers and the structure of the health care delivery system. The more prominent concerns include:

- the levels of systematic and unsystematic risk across excluded classes of hospitals and patients, and
- the anticipated levels of administrative burden.

Risk is the degree of dispersion of payoff around an expected value. Hospital financial risk at the case level is the means by which PPS changes incentives to providers. Case-level risk must, therefore, be part of PPS. Since it is the hospital, however, and not the individual patient, that is at financial risk, it is appropriate to examine the effects of PPS using the hospital as the unit analysis.

Hospital-level risk arises from two factors, what could be called unsystematic and systematic effects of a payment system. This distinction between these causes

of potential fiscal distress is important because different research bears on each, and the possible remedies for the problems are different.

Unsystematic Risk

Random or unsystematic effects occur because the set of actual patients receiving care at a facility will never be exactly like the "average" patients within each category of a classification system. For this reason, costs will vary from revenues because of such random factors as are unaccounted for in the classification system. This is a simple risk. Cost/revenue discrepancies due to random effects will tend to balance out over time as the number of discharges grows. Facilities with many Medicare discharges are protected from unsystematic risk by the law of large numbers. The December 1982 Report to Congress refers to the "law of large numbers" and States that "approximately 50 Medicare cases are needed for the averaging process to work reasonably well."

A few calculations lend support to these assertions. Consider a DRG with a coefficient of variation (CV)[4] of 1.0, which implies the standard deviation is the same value as the mean. For example, if the average cost were $2,000, the standard deviation of cost for this DRG would also be $2,000. There is certainly a good deal of risk at the individual case level; but how much risk does a facility bear?

[4]A commonly used measure of risk is the standard deviation, which is (the absolute value of) the expected difference between a value of a distribution and the mean. The standard deviation divided by the mean of a distribution is the coefficient of variation (CV). This measure of dispersion corrects for the magnitude of the average value of the variable. Research on the CV within classifications bears on the criterion of minimizing risk to facilities under a payment system. Differences in CVs in classification systems have been main focus of case-mix research.

In terms of unsystematic risk, of course, the facility has as much chance to lose or gain. A high CV implies that the chance of relatively high individual gains is greater. Table 3-1 illustrates risk as a function of discharges when the CV for a DRG category equals one. (In the case of a group of categories, such as the nine

TABLE 3-1

The Law of Large Numbers, Provider Response, and Unsystematic Risk to Facilities under PPS

Likelihood of Losing 10% or More When CV = 1.0*

Annual Number of Medicare Discharges	Provider Response: None	10% Reduction in LOS	20% Reduction in LOS
1	46%	41%	36%
25	31%	13%	3%
100	16%	1%	0.1%
400	2%	0.01%	0.1%

*The numbers in this table rely on an assumption that the distribution of cases is normal within classes and the CV is 1.0.

current psychiatric DRGs, a CV of one can be thought of as being the weighted average of the CVs for the various categories in the group.) With no change in length of stay (LOS) in response to prospective payment, the risk of losing 10 percent under prospective payment falls to 16 percent with a caseload of 100. At a caseload of 400, the risk is trivial.

There may be some concern for smaller facilities or units. For distinct-part units, though, because the unsystematic risk of cases is independent of the risk associated with medical and surgical cases, addition of an excluded unit may actually decrease the risk at the facility level. Only excluded hospitals that treat few Medicare patients may not have a large enough caseload to rely on the law of large numbers to balance gains and losses over time. The total caseload of many of these facilities is likely to be in the hundreds, however, so that the financial risk of unsystematic losses from Medicare will be small in relation to total income of the facility. For example, consider a facility with only 100 cases averaging $2,000 per case of which 25 cases were under PPS with a CV of 1.0. The facility faces only a 2-percent chance of a loss of 10 percent or more during the year on its overall operation.

In addition to the law of large numbers, the problem of unsystematic risk can be reduced by "refining" the classification system -- in other words, by increasing the number of patient categories to achieve more homogeneity within groups. Adding a severity adjuster to a DRG classification system would be one example of this. Provider response is a second effective protection against unsystematic risk. A 10-percent reduction in LOS as a result of prospective payment is equivalent, for example, to a quadrupling of a caseload in terms of protection against a 10-percent

loss.[5] Finally, payment system options, such as the present outlier policy, will reduce the problem of unsystematic risk. After some cutoff, long LOSs will be partially reimbursed on a cost basis.

Systematic Risk

A more significant concern involves systematic risk. Systematic factors do not succumb to the law of large numbers. A systematically more expensive facility or one that draws a systematically more resource-intensive caseload (in a dimension not reflected in the classification system) will have an expected loss per case that does not diminish with increases in the number of discharges. The distinction between risk and systematic effects is recognized by Jencks, et al., (1984) who state "case-by-case inequities may cause some management difficulties, but it is the hospital-by-hospital equity or inequity which makes the system fair or unfair."

Systematic under-reimbursement could lead to discrimination against admission for patients anticipated to be more costly than average within their classification. It is this concern that brought about payment adjustments for urban and teaching hospitals in the original PPS legislation. In the excluded hospital area, a main

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[5]The value of standard normal distribution used to determine entries in Table 3-1 is

$$z = \frac{L + S}{CV/\sqrt{N}}$$

where L = Loss, e.g., .10
S = supply response, e.g., .10
CV = 1
N = discharges

The value of this expression is doubled when either L + S doubles or N increases by a factor of four.

concern is that a more specialized facility may systematically treat more costly cases. A corollary to this is that within an excluded hospital class some hospitals systematically draw more severe caseloads than others. A classification system based on the average cost across all types of facilities may be detrimental to classes of institutions, such as specialized excluded facilities. In comparing case-mix classification systems, then, a critical issue develops in determining whether the variation in treatment requirements that is not explained by the classification system is associated with particular groups of hospitals in such a way as to result in unfair payment.

In the context of a payment system, if a hospital draws more costly cases within a DRG or other grouping, utilizing severity adjustors that distinguish between the more and less costly cases and paying accordingly will reduce systematic risk. Payment system options that relate reimbursement to cost also ameliorate systematic effects. Payment under TEFRA, while it fails to distinguish necessary from historical costs (see Chapter 2), does, for example, build in strong adjustments to systematic risk. On the other hand, if cross-subsidization of services is occuring in certain types of excluded facilities, the calibration of prices may systematically underestimate costs per case for these providers. Research on the ability of classification systems to explain variance in resource use bears on the empirical importance of the problem of systematic risk.

There are no studies, however, that really begin to decompose the contribution of patient need versus style of practice in regard to resource use. To the extent that it is the provider patterns of care that account for differences in resource use, as opposed to patient characteristics, these patterns of care could be

changed, perhaps dramatically, with no impact on quality of care. A large enough response by facilities currently offering the most intensive versions of therapy may bring them into line with the average.

Nonetheless, where there is a divergence of treatment philosophies about how to treat a given patient -- as is the case with psychiatry -- provider responses leading to reduction of treatment patterns will be difficult to achieve. In such a case, prospective payment systems could cause significant redistribution of resources among facilities that would not be considered clinically appropriate by practitioners. Redistribution per se, apart from issues of cost effectiveness, is not necessarily desirable. Classification and payment options that moderate unwanted redistributions must be given careful consideration.

Administrative Burden

A national system of classification and payment must rely on uniformly collected data. The system should be easily applicable and implementable in any health care setting. Ease of implementation has been a criterion of general consensus, usually in the context of the advantage of using data items available on the Uniform Hospital Discharge Date Set (UHDDS).[6] These data elements are

[6]The UHDDS is a set of routinely collected data elements found on the cover sheet of almost all medical records of a hospital stay. The UHDDS comprises age, sex, discharge diagnoses, procedures performed, type of place to which discharged, and whether the discharge was alive, dead, or against medical advice. Under UHDDS rules, the diagnosis that is listed first is the "principal" diagnosis -- that diagnosis which, after study, is determined to be principally responsible for causing the admission.

routinely collected by Medicare and many other payers for all hospital admissions and are therefore routinely available in automated form for case-mix classification. Whether a classification system uses UHDDS data are obviously a matter of considerable practical importance, since other data are not routinely available either to test a system or to set weights.

Classification systems, such as Horn's severity index, which require trained raters to score the patient's hospital record, perform less well on a criterion of low administrative costs in comparison to fully automated classification systems. The extra cost of any classified system should, of course, be considered in relation to whatever benefits it provides.

From the point of view of ease of administration, a more gross system, using fewer data elements, would be preferred. The more straightforward the classification system, the less payers and providers will have to do in order to collect, transfer, and process the information necessary to effect payment. As was discussed earlier in this Chapter, these goals run somewhat counter, though, to the possible need to collect measures other than--or in conjunction with--UHDDS measures for classifying patients in excluded facilities. To the extent that additional and reliable data elements might be generated for excluded hospital payment system purposes, the overall benefits versus administration impacts will deserve careful assessment.

Discussion

The construction of a new prospective pricing system must begin with an explicit statement of the goals and objectives of such a system, and correspondingly, the set of values or framework that will be utilized to evaluate its relative success must be established. A prospective pricing system for excluded facilities will be judged most closely on its capability to promote cost-effective delivery of care for Medicare beneficiaries and its level of equity or fairness of payment across participating providers.

This chapter has also specified the process that must be undertaken and followed in constructing a new payment system for excluded providers. In its examination of a discussion of each of the fundamental stages in this process, a number of key distinctions that separate excluded facilities from the acute care system have emerged. Each of these distinctions has implications for subsequent deliberation and development of payment policies. These include:

- o Acute-illness patients. Excluded facilities, like acute-care facilities, treat a range of patients with acute illness. What distinguishes excluded facilities is the fewer numbers of these patient types. A second distinction is the possibly different distributions of lengths of stay (LOS) for these patients between classes of facilities. To the extent that these patients have inpatient stays that are well-defined (i.e., low variance in LOS), the distinction between long stay patients versus short-stay patients can not be expected to present difficulties for a PPS system as such. Further, to the extent that the case-mix of

excluded facilities is characterized to a significant degree by well-defined acute-care patient types, a payment system similar to the existing PPS might be expected to be developed with a relative degree of success. If, on the other hand, the inpatient stays are poorly defined (e.g., high variations in LOS), refined case-mix measures or payment system adjustments (i.e., outlier policies) may be needed.

- o Chronic-care patients. Excluded facilities treat a proportionately greater share of the patient population with chronic illnesses. Inpatient care for these patients is manifest by a spectrum of approaches that range from episodic to continous care. For payment system purposes, these patients can be characterized by roughly three patterns of inpatient care:
  - repeated short stay admissions,
  - some aspect of "integrated" care involving multiple treatment settings and varying inpatients stays over some period of time, and
  - continuous, long-term care.

  The first and third patterns of care for chronic patients pose only minor difficulties in developing a PPS system for excluded facilities. In the first instance, classification schemes and payment levels can be constructed in ways similar to the existing system for acute-care/short-stay patients. The third pattern will not impinge upon the Medicare program because of the present benefit structure that is generally confined to the elderly (65 years and older) and to a limited number of inpatient hospital days (see Chapter 2). Because Medicare

was designed by Congress and continues to function largely as an insurance program for payment of medical bills during periods of acute illness, only in the case of rehabilitation and psychiatric acute-care patients is Medicare a primary payer of care. For chronic continuous-care patients treated in excluded facilities, such as the respirator-dependent, it is Medicaid that is generally the insurer.

For chronic patients in need of a more intermediate pattern of care, considerable deliberation should be used in developing and implementing a PPS system. For these patients in excluded facilities, inpatient care is (and should be) one level of many that occur during a period of treatment. By isolating the episode of inpatient care (from the larger pattern of integrated care) and paying this prospectively, distortions may be introduced into appropriate patterns of care. Inpatient stays might be too short, as patients are discharged to settings reimbursed on a cost basis, or repeated admissions may be managed to maximize reimbursement. When an institution (hospital) sees reasonably good substitutes for the care it could provide (say, outpatient care), it is easier to respond in good conscience to financial incentives.

- Differentiated Systems. This is closely related conceptually to developing payment systems around integrated approaches to the delivery of care. Likewise, this characteristic poses a problem in designing a PPS system, introduced by implicit or explicit referral patterns in the areas of treatment delivered by excluded facilities. In

the context of discussions of this chapter, this characteristic is a problem of systematic risk.

As research has proceeded through each of the four fundamental task areas, and results and accomplishments have been achieved and reported, payment system options for addressing these key distinctions and including excluded facilities under a prospective payment system have begun to take shape and been taken under consideration. This translation of research into implications for policy and further into legislative and regulatory recommendations constitutes, in essence, a fifth and final fundamental task in constructing a payment system. The next chapter reports in some detail on the results of the undertaking of these five stages of development for each of the four specialy hospital classes.

Chapter 4

REVIEWING RESEARCH STUDIES ON PPS FOR EXCLUDED HOSPITALS

Introduction

Following the mandate outlined by the 1983 Amendments, the Health Care Financing Administration's Office of Research and Demonstrations has funded or cofunded a wide range of research studies related to the advisability and feasibility of a prospective pricing system for the four excluded hospital classes. In addition, a large number of studies outside the Department on this topic were monitored on a concurrent basis.

Research conducted under the auspices of the Department was directed towards the undertaking of a subset of the five general tasks delineated in Chapter 3:

- o an analysis of the service delivery system,
- o the development of a classification system,
- o the design of payment system,
- o an impact assessment of the redistributional aspects of the payment system, and
- o legislative and regulatory recommendations.

This chapter provides a synopsis of the unique aspects of each hospital specialty class, reviews and analyzes relevant research, and draws implications for policy. Each section of this chapter is structured to parallel logically the five developmental tasks outlined above. Each section includes an initial description and analytic extension (from Chapter 2) of the particular excluded group being

examined. Research undertaken and funded by the Department on the development and performance of classification and payment systems is described and analyzed. A synthesis of other available research is presented. Results from impact assessments are reported. Depending upon the findings for the excluded class of facilities, a model for payment purposes concludes these chapters, with implications for specific legislative and regulatory proposals, and directions for future research.

Children's Hospitals and Pediatric Hospitalization

Although only a very small proportion (12.9 percent) of its budget is directly devoted to children under the Medicare program, the Health Care Financing Administration (HCFA) plays an important role in payment for pediatric health care --especially pediatric hospitalization -- and in the financial health and visibility of pediatric hospitals. This role has stemmed from its initiative and leadership over the past decade in researching and developing case-mix and payment systems for health care delivery. The implementation by HCFA of the new Prospective Payment System (PPS) has, furthermore, stimulated many State Medicaid programs as well as other large payers who account for a large proportion of child health financing in this country, to reconsider their financing strategies.

Analysis of Existing Delivery System

Pediatric hospitalization is provided in several types of settings: in tertiary pediatric hospitals, university hospitals with primary pediatric residency programs, community hospitals with pediatric residency and community hospitals without pediatric residency. Throughout this section "children's hospitals" will be used to

designate hospitals in which the majority of patients are less than 18 years old;[1] "tertiary pediatric hospitals" will be used to refer to both children's hospitals and university teaching hospitals which have primary pediatric residency programs; and pediatric hospitalization will be used to refer to hospital services to children in all types of hospitals. These distinctions are useful as some of the issues related to prospective pricing for pediatric hospitalization stem from the formulation and application of the DRG system itself and apply to pediatric hospitalization regardless of hospital type. Other issues, however, arise from the particular case-mix thought to be served by tertiary pediatric hospitals. Still other issues relate to the particular institutional situation of children's hospitals only. While the more narrow focus is on children's hospitals because they were specifically excluded under the 1983 Social Security Amendments, the broader policy context of all pediatric hospitalization is essential from the perspective of implementation of any case-mix classification and pricing system.

Pediatric Hospitalization. Hospitalization rates for pediatrics, measured either as admissions rates, patient days per capita, or average length for stay (ALOS), are considerably lower than those for the general population. When children are hospitalized, accidents (fractures and intracranial injury) constitute 2 of the 6 most common reason for admissions. Chronic problems and diseases (congenital

[1]It will be recalled from Chapter 2 that along with Medicare certification, this is the only criterion for exemption status under PPS.

anomalies and asthma) are also important contributors to hospitalization among children. But the greater bulk of hospital utilization among children occurs among infants and young children.[2] The discharge rate for children less than 1 year of age is three-one-half times that of children less than 15 years of age, and the ALOS for infants in one-and-a- half times longer.

The higher hospitalization rate among infants is, in part, due to the greater fragility of younger children, in whom clinical status is more likely to deteriorate rapidly than in older children or adults. In addition, the younger the child, the less the likelihood that objective clinical evidence of illness will become manifest. As a result, aggressive treatment such as hospitalization becomes much more warranted. For example, any fever in a child less than 2 months of age almost automatically will have a consequence of at least a short hospitalization for purposes of observation.

Given these patterns of care for infants (e.g., observation when uncertainty exists), there may occur a greater variance in length of stay among children having a given condition compared with adults. In addition to catastrophic illness requiring treatment in Neonatal Intensive Care Units (NICUs), there are several reasons to admit a young baby overnight for observation while awaiting, for example, laboratory results. If this greater variance exists, it may benefit

[2]This is true even if routine hospitalization at birth is excluded.

hospitals with stays which are shorter than average while penalizing those with longer stays.

On the average, pediatric hospitalization stays are shorter than adults' (see Table 4-__). As with adults, children's ALOS tends to increase directly with the size of the hospital. For children under 15 years in hospitals with 5-99 beds, the ALOS in 1981 was 74 percent that of children in hospitals with more than 500 beds. This probably reflects the fact that larger hospitals are more likely to be tertiary and/or teaching centers, and thought to be caring for patients in need of greater resource intensive treatment than are smaller hospitals. As with adults, the ALOS for children varies according to geographic region, though variation is less pronounced than are the differences for adults. Stays in the Northeast and the South tend to be slightly longer than in the North Central and the Southwest.

The ALOS of infants hospitalized for neonatal morbidity is about 14.2 days, and it is not unusual for such infants to be hospitalized for a month or more (Kovar, 1978). The longer average stays of these infants, and the fact that they are usually hospitalized in NICUS, which are extremely expensive, make payment issues related to neonates especially pertinent.

There is evidence that children who are repeatedly hospitalized for the same illness make up a large proportion of the higher cost patients in children's hospitals. In Chapter 3, it was noted that a significant proportion (as high as 50 percent) of pediatric patients repeatedly hospitalized were done so for the same disease (RHSD) over a ten year period. Depending on the diagnosis, these children may either require periodic acute-stay care, progressively more intensive and expensive

care or, in contrast if their condition is ameliorated by growth, development, or treatment, progressively less expensive care (Quilty, 1985).

Hospitals Providing Care to Children. According to a recent survey by the National Association of Children's Hospitals and Related Institutions (NACHRI), there were 51 registered children's hospitals in the U.S. in 1982 that provided general medical and surgical acute care services (NACHRI, 1984). These facilities correspond roughly to the current list of 49 children's hospitals excluded from the PPS. In addition, 21 children's hospitals specialized in orthopedic care; 9 in rehabilitation medicine; 31 in psychiatric care; and 14 in other or mixed services.[3]

Using American Hospital Association survey data, Hadley and Feder (1985) similarly found 50 hospitals classified by the AHA as short-term care institutions limiting services primarily to children. Although less than 1 percent of the nation's hospitals beds, the authors further found that these children's hospitals accounted for about 10 percent of the nation's general pediatric and neonatal intensive care beds, and 30 percent of all pediatric intensive care beds. Among short-term general hospital nationally, the 3.4 percent with 50 or more pediatric and/or neonatal care beds also played a very disproportionate role in providing care to children. These hospitals, which are much larger than other hospitals, contained 11

[3]Many facilities from these latter groups of hospitals have obtained exclusion status under rules and regulations for rehabilitation, psychiatric, chronic-disease hospitals and distinct-part units is discussed in later sections of this chapter.

percent of all hospital beds, but 23 percent of general pediatric beds, 52 percent of pediatric intensive care beds, 52 percent of neonatal intensive care beds, and 58 percent of neonatal intermediate care beds. Other short-term general hospitals provided much less children's care per institution, but in the aggregate were still responsible for the major share (66 percent) of the nation's general pediatric care. Consistent with their smaller average size, their role in pediatric intensive care and neonatal care was much smaller. Finally, rehabilitation, psychiatric, chronic disease and other specialty hospitals, including those limiting care primarily to children, accounted for a very small portion, about 2 percent, of designated children's beds.

Children's hospitals also differ significantly from general hospitals in kinds of ownership, teaching status, location and service/staffing characteristics. Only one of the children's hospitals in this country is publicly owned. In contrast, almost one- third of the general hospitals with 50 or more children's care and one-fifth of the other general hospitals are publicly owned. Hospitals providing large amounts of care to children are much more likely to be teaching hospitals with pediatric units than other general hospitals. Most children's hospitals belong to the Council of Teaching Hospitals (COTH), but most of the others also have approved teaching programs. Almost all children's hospitals are located in the nation's largest cities, whereas 61 percent of larger general hospitals are located in the largest cities. For other general hospitals, however, more than one-fourth are in the 100 largest cities, 44 percent are in other metropolitan areas, and nearly one-third are nonmetropolitan communities.

Finally, patterns for physicians, residents, and pediatric staff in the children's and large general hospitals are very similar. The one major difference between the children's and large general hospitals is in total staff per 1,000 adjusted patient days. Children's hospitals employ almost 40 percent more staff, primarily professionals such as recreational, physical and clinical therapists, suggesting that case mix in these hospitals may include relatively more cases with chronic or disabling conditions than at general hospitals (Hadley and Feder, 1985).

The suggestion of a differing pediatric case-mix across settings was recently confirmed with evidence from a study cofunded by the Health Care Financing Administration,[4] the Pew Memorial Trust, and the membership of National Association of Children's Hospital's and Related Institutions, Inc. (NACHRI).

Data services for the study included a sample of approximately 500,000 pediatric discharge abstracts provided by the Commission on Professional and Hospital Activities (CPHA). The discharges selected were from five identifiable hospital provider settings -- children's hospitals, university hospitals with pediatric residency program(s), urban hospitals without a pediatric residency program, and rural hospitals without a pediatric residency program -- during the period January - December 1982. These five populations were drawn to provide an examination of the characteristics of pediatric hospitalizations across settings as well as the characteristics of adults versus pediatric patients.

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[4]Coop. Agreement No. # _____

A subset of 95 DRG categories comprising 80 percent of the discharge sample were subjected to detailed evaluation concerning the distribution of types of pediatric cases by diagnostic category across types of hospitals. Clear differences in the distribution of cases across types of hospitals were found, though children's hospitals in themselves seldom appeared to be unique. Most commonly, the children's hospitals appeared to be very similar to university teaching hospitals with pediatric residencies. Among the patterns of findings established were that:

- o children's and university hospitals treat a much broader range of cases than other provider types;

- o children's hospitals experience the highest proportion of cases in surgical DRGs -- 32.6 percent;

- o virtually all of certain pediatric conditions -cardiovascular diasease, nervous system neoplasms, leukemia and other chemotherapy cases are treated in children's and university hospitals; and cancer patients are treated predominantly in children's and university hospitals. Children's hospitals, for example, treat 16 times the proportions of cancer patients seen in non-teaching hospitals.

- o children's and university hospitals have a higher proportion generally of cases with comorbidities and complications, patients under five years of age, and patients with congenital disorders. A higher

proportion of their neonates have low birthweights, respiratory distress syndrome, and similar serious conditions.

The most outstanding exception to these findings was MDC 15 (Neonates), for which children's hospitals had a substantially lower proportion of cases than the other hospital groups, including university hospitals. This finding, however, may have been, in part, the result of the fact that children's hospitals do not have delivery rooms and serve as referral centers for neonates born elsewhere. Also, some incoming babies may or may not be assigned to the neonatal MDC, depending upon principal diagnosis and surgical procedures.

A second area of investigation in this study concerned potential differences among types of hospitals in treatment intensity case or resource use for pediatric patients within individual disease categories. Patient severity was assumed to be associated with resource use. Resource was measured primarily by two variables: length of stay and total charges.

Resource use was found to differ widely across both MDCs and DRGs, regardless of hospital type, though some basic patterns of resource use by DRG category emerged from the analysis, including:

- distinctly higher levels of resource utilization in children's and university teaching hospitals in 35 DRG categories; and,

- similar levels of resource intensity in all hospital types in 10 DRG categories; in other words, the evidence is suggestive that for

certain childhood conditions (such as tonsillectomies), children's hospitals and university teaching hospitals with pediatric residences treated cases no more or less expensively than community hospitals.

There were several, different patterns of resource by hospital type for 38 DRGs; in another 12 DRG categories, too few cases across all of the five settings disallowed any meaningful comparisons.

For the 35 DRG categories with increased levels of resource intensity, the implication that might quickly be drawn is that children's and university hospitals treat the most severe patients. This indication of systematic upward bias in case severity for these institutions must be strongly tempered by the fact, however, that resource consumption was the only feasible measure of severity available. In addition to being a proxy for severity, resource use itself was measured by the proxy variables length of stay and charges, and charges were available for less than one-half of the cases in the pediatric sample. This limitation obviously clouds the validity of findings based on these measures, and at least raises the possibility of differences stemming from practice style (versus need).

An attempt was made to use SysteMetrics' disease stage measure, a more direct measure of severity than resource use, but for a variety of reasons they did not play a major role in the assessment. However, in another study by Long et al. (1985) utilizing the same CPHA data base, disease stage was measured and compared among the same five hospital types. Overall, they found no difference in severity among the hospital groups. However, when comparing the proportion of patients in more severe disease stages (categories 3-5), children's hospitals and

university teaching hospitals had over twice the proportion of severe patients as did the other hospital types.

Finance and Payment. While only a small part of the Federal health care budgets is spent on pediatric hospitalizations, public sources of funding play an extremely important -- indeed, pivotal -- role in financing this care. Almost half (45.8 percent) of the expenditures on pediatric hospitalization comes from public sources, the most important of which is the Medicaid program. Medicaid was the principal source of payment for 18.5 percent of the patients under 15 years of age who were discharged from non-Federal, short-stay hospitals in 1979. This reliance on Medicaid is higher among children than any other age group. It was second only to private insurance (which was the principal source for 66.9 percent of the patients). Children represent the largest single eligibility group in Medicaid (23.2 percent of the eligibles). Due to their low rates of hospitalization, however, they account for a disaproportionately lower percentage (13.6 percent) of Medicaid expenditures. In FY 1983, Medicaid spent about $2 billion of its program budget on children's hospitalization. The Medicare program covers a small number of children under the End Stage Renal Disease (ESRD) program. It is the principal source of payment for 1.2 percent of hospitalizated pediatric patients. As of mid-year 1982, 3.5 percent of the ESRD beneficiaries were children less than 15 years old.

Chapter 3 stated that between 7.2 million and 10.8 million American children (10-15 percent of all children) have some type of chronic impairment. Of these, between 1 million and 2.8 million have conditions sufficiently severe to limit their daily activities significantly (DHHS, 1983). The Crippled Children's Program

(mandated by Title V of the Social Security Act, financed by the Bureau of Community Health Services and administered by the States) covers medical services for handicapped children. Funding allows the program to serve approximately 750,000 children annually (DHHS, 1983).

Although "no charge" (i.e., bad debt, charity, and teaching cases) accounted for only 0.1 percent of the discharges among children in 1979, it was the principal source of payment for a greater percentage of patient days for children than for any other age group. Perhaps more striking, though, the ALOS for "no charge" children was almost three times longer (11.6 days) that the ALOS for all children (4.3 days).

Issues Specific to Children's and Tertiary Pediatric Hospitals. There are several reasons why the DRG-based PPS as it is currently formulated may be inadequate to predict the resources needed by pediatric patients. To some degree these have been reviewed in Chapters 1 through 3, but are briefly presented here.

First, the data base used to develop and validate DRGs may have under-represented tertiary level pediatric cases. The data base used to develop DRGs was drawn from adult acute care hospitals. No children's hospitals were included in the data base, and there were, therefore, fewer tertiary-level pediatric patients included in the sample than there would have been if children's hospitals had been included.

Secondly, children have different diseases than adults (or different clinical presentations of the same disease), and require different types of treatment, which

may render the case-mix and/or relative weighting systems for adults largely inapplicable to children.

Over the long run, children's hospitals may be relatively efficient due, in part, to the highly differentiated levels of care for children's hospital services. Still, various specialized pediatric services and standby capacities more likely to be present in tertiary hospitals can make caring for patients there more expensive than in other hospitals.

Third, existing refinement measures within DRGs for intensity of treatment requirements may not be sufficiently sensitive for the tertiary pediatric hospitals serving--as recent evidence reveals--disproportionately higher numbers of extremely ill children that may appropriately require significantly more resources than do less severely ill children.

Fourth, the age categories used in formulating the existing DRGs may be too inflexible or unrefined to reflect the utilization and cost experience of children's hospitals. The only age divisions included in DRGs relating specifically to children is made for children less than 18 years old. For certain DRGs, a child's age can have a strong relationship with ALOS.

Fifth, transport costs are imposed on tertiary pediatric centers receiving referrals due to the clinical needs of the patients. These costs are not imposed on the referring hospitals. When asked by an outlying hospital to accept a critically ill child (whether a neonate or an older child), it is the tertiary center which provides the transport team (the doctor and nurse who are specially trained to stabilize and

transport critically ill children). Stand-by capacity for transports must be available, which increases the costs to the tertiary center.

Sixth, the issue has been raised as to whether or not pediatric charges in general hospitals and/or tertiary hospitals with pediatric units are subsidized through shifting some of the costs from children's to adult services. This could result in the charges in those hospitals being lower than those in children's hospitals, which cannot shift costs to adult services. In such a case, and if payment rates are based on average charges, hospitals specializing in pediatric services, which do not have access to such subsidies, may not recover their true operating costs and may be financially penalized by the system.

Performance/Development of Classification Systems

Using the CPHA discharge data base described earlier and building on results examining systematic differences in pediatric case-mix and (possible) resource requirements across different types of facility settings, research has been undertaken to test whether:

- current DRGs adequately define homogenous groups of pediatric patients in all types of hospitals, and

- if an alternative classification can be identified that better defines homogeneous groups of pediatric patients, or patients in children's hospitals.

A review of the preliminary results of Phase this work suggests that a refined group of DRGs may, in fact, perform much better for pediatric hospitalization at least in terms of reducing variation in length of stay. In addition, there is evidence that they satisfy the criterion of clinical meaningfulness.

The study investigated the additional variance reduction that could be achieved among pediatric diagnostic categories with the application of improved clinical definition and case-mix (or severity) measures other than those contained in the current PPS. All DRG categories with more than 500 cases were examined in detail. The alternate systems included the SysteMetrics' disease-staging categories; Pediatric Diagnosis System (PeDS), a modified pediatric version of disease-staging categories; the Patient Management Categories (PMCs) of Blue Cross of Western Pennsylvania, the Horn Severity of Illness Index measure, and variables for age and birthweight.

DRGs as a whole were found to be better or equal to alternate systems.[5] Applying the same statistical method for defining diagnostic groupings as that of the original DRGs at Yale University, categories were adjusted to reflect the special situations of pediatric care. Certain changes were "global" in the sense of reassigning patients from across all Major Diagnostic Categories (MDCs); others were more confined within an MDC; most affect a single DRG or pair of DRGs.

7No explicit attempt was really made overall to rate the comparable effectiveness of the different systems. Rather, the alternative systems provided guidance in establishing new groupings.

The refined DRG system for pediatric cases ("PDRGs") proposes 70 to 80 additional groupings, and modifications for 52 other patient groupings. In addition, the new categories draw selectively on decision "trees" (or computers algorithms) that assign categories under either the SysteMetrics' or the PMC system. New groupings could be applied to not only children's hospitals but to all pediatric hospital stays, and utilize existing data elements on the standard billing form with one exception -- that of additional birthweight categories for neonates.

The change that adds data elements used to assign patients to DRG's relates to MDC 15, Newborns with Other Neonates with Conditions Originating in the Perinatal Period. It was found that birthweight alone explains 30% of the variance in length of stay among the neonatal patients in the MDC. Therefore, it was recommend that birthweight be required for every patient under 29 days of age for use in assignment of DRG's in this category. A second major adjustment was a separate grouping of Cysitc Fibrosis (CF) patients in MDC 10, Endocrine, Nutrional, and Metabolic Diseases. Under the original DRG classification, CF occurs across many MDC's according to the patient's principal diagnosis. Presently, these patients are grouped together regardless of whether the diagnosis was principal or secondary.

Certain of the other adjustments were confined within an MDC, but affect a series of DRG's therein. For example, in MDC 8, Diseases of the Musculoskeletal System, surgical patients with bone infections and inflammations had resource use related more to the bone infection or inflammation than to the surgical procedure. Such patients were assigned to one of two new groups, one with, and one without comorbidities and complications.

The remaining changes can be categorized in several different ways because the problems are related to several phenomena. Certain specific pediatric diseases occur in sufficient volume with related, significantly different resource use to be singled out for separate DRGs. Examples of these DRG's include Lead Poisoning and Sickle Cell Crisis. More frequently groups of diagnoses, rather than single diseases, have been separated. One example is using DRGs 27, 30 and 33 to separate Severe Head Trauma, age 0-17, from Non-Severe Head Trauma, age 0-17.

Payment/Impact Assessment

A final phase of research undertaken by HCFA will be conducted late in 1985, will apply detailed cost accounting data from a randomly selected sample of 12 children's hospitals to test the new PDRG classification system, and will conduct various cost analyses and simulations to test the PDRGs for use in prospective pricing in children's hospitals. This effort will also avail the stratified sample of teaching hospital cases from the Department's Graduate Medical Education (GME) study to analyze the effect of alternate costing methodologies on relative weight compression and cross subsidization. Given the small case size of the GME data base, redistributional impact analyses for teaching hospitals may not be fully valid, but should assist subsequent revenue simulations using larger cost data bases. Discussion will be inserted as results become available.

Implications for Policy

At this time, PDRGs would appear to be sufficiently developed to anticipate possible support of payment reform. As simulations are conducted, final payment

recommendations can develop. However, several general statements can be made at this juncture:

- Once the impact analysis is conducted and final revisions to the PDRGs are accomplished, HCFA may want to perform an impact analysis of the redistributional consequences of the proposed PDRGs and the additional hospital-specific features of a prospective pricing system. Equally important is a sub-analysis to compare the financial impact on hospitals for Medicaid patients only, since it has been argued that hospitals treating a high proportion of these patients may be at substantial systematic risk, because the group is, on average, more costly. At that time, HCFA can recommmend to the Congress the revised PDRG system for purposes of Medicare and Medicaid reimbursement of pediatric care. It is expected that NACHRI and its constiuency will be supportive of these recommendations.

- HCFA research studies on the feasibility of a PPS for children's hospitals have not focussed on the most appropriate reimbursement system for a more integrated delivery system of necessary care for severe pediatric conditions (e.g., certain congenital defects). While the revised PDRGs frequently assign groups on the basis of the severe underlying condition -- and so characterize the most expensive cases reasonably well -- the payment of inpatient care separately from other types of care encourages unintegrated, and sometimes inappropriate and inefficient, care for severely ill children. Children's hospitals

are more likely to treat these children. This issue deserves attention at a later date.

Psychiatric Hospitals and Distinct Part Units

A system intended to create equitable per-case Medicare payment rates for presently excluded psychiatric units and hospitals must take account of several facts:

the present organization of the system of psychiatric hospital care gives different psychiatric facilities very different roles and very different costs per admission,

interfacility transfers are very common and appear to be used particularly to move patients from short-stay facilities to long-stay facilities,

Medicare's coverage of psychiatric services is unlike its coverage of other medical services,

Medicare admissions constitute only 10-15% of admissions to excluded facilities, and the majority of these admissions are under 65, disabled, and probably chronically mentally ill, and

the factors that influence the cost of necessary psychiatric inpatient care, which must be included in any case classification system, have proven exceedingly difficult to identify and measure.

This section provides detailed information about these distinguishing features of the excluded psychiatric facilities and describes their policy implications. [6]

The Current Delivery of Psychiatric Inpatient Services to Medicare Beneficiaries.

There are two important distinctive features of the current delivery of psychiatric inpatient services to Medicare beneficiaries when compared with other medical-surgical services: the organization of the system which delivers inpatient care and the volume and structure of services for which Medicare pays.

The Psychiatric Hospitalization System. Hospital-based psychiatric care is delivered in five kinds of settings:

1) General hospital beds which are not part of organized psychiatric units ("scatter beds", which are now paid under PPS). Length of stay for patients in these beds is the shortest of all five groups, frequency of psychotic diagnoses is lowest and frequency of neurotic and substance abuse diagnoses highest. In the psychiatric community, care rendered in these beds is thought to be more interim and less definitive. Admissions to these beds comprise about half of all alcohol, drug, and mental health admissions to all inpatient facilities, but the exact proportion for Medicare psychiatric admissions is not known. These beds can be under public, voluntary, or investor-owned auspices.

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[6] This section is a precis of Appendix A to this report, which lays out the findings and evidence in substantially greater detail; this section therefore does not include detailed references.

2) General hospital beds which are part of organized psychiatric units but which have not been excluded from payment under PPS (non-excluded units, which are now paid under PPS). Although non-excluded units tend to be smaller and to have shorter stays than excluded units, some could have met the exclusion criteria but did not do so because they decided that inclusion under PPS would be fiscally sound. These beds also can be under public, voluntary, or investor-owned auspices.

3) General hospital beds which are part of organized psychiatric units and which have been excluded from payment under PPS ("excluded units", which are all paid under TEFRA). Many of these units, especially the larger units and those in voluntary and public urban hospitals, closely resemble freestanding psychiatric hospitals in patient characteristics and length of stay. Unlike the freestanding psychiatric hospitals, these large urban hospitals tend to care for a higher proportion of indigent patients. There are about 1200 general hospital units, of which 762 were exempt in June 1985.

4) Beds in psychiatric hospitals which are owned either by investors or sponsored by voluntary boards of trustees (non-public hospitals, which are all paid under TEFRA). These facilities tend to have a very low proportion of patients who are unable to pay and to have lengths of stay which are intermediate between smaller general hospital units and state and county hospitals.

5) Beds in psychiatric hospitals operated by states or counties (public hospitals, which are all paid under TEFRA). These hospitals serve as a safety net for the psychiatric inpatient system; they usually are required by law to receive all patients, and accept the majority of those who cannot pay as well as a majority of patients who are involuntarily committed for care. They have a higher proportion of disabled and psychotic patients than other types of hospitals and the longest average stays. A total of 464 non-public and public psychiatric hospitals were Medicare participants in June 1985.

These different settings give care to patients with different needs and with markedly different lengths of stay and costs. The five categories comprise a continuum of increasing length of stay, increasing frequency of psychotic disorders, increasing frequency of civil and criminal commitment, and increasing frequency of permanent disability.

Differences between settings result both from initial triage of patients to particular hospitals and from transfers of patients between facilities, especially transfers from short-stay to long-stay facilities for patients who do not respond to treatment. As chapter 3 noted, a psychiatric patient is two to three times as likely as a medical-surgical patient to be transferred to another hospital on discharge from a general hospital. Thus both community referral patterns and interhospital referral patterns support and reinforce the way in which psychiatric inpatient settings are differentiated.

One of the most important controversies in use of psychiatric hospitalization is whether the longer lengths of stays in some facilities reflect increased treatment needs of patients, higher quality care for patients whose conditions are similar across institutions, or simply less efficient care. Although there is little solid evidence to resolve this issue, there are some suggestive data: adjusting for patient differences in diagnosis and in other characteristics accounts for much, but by no means all of the difference in length of stay between government psychiatric hospitals and general hospitals. On the other hand, there are sharp differences in length of stay and cost across states; these differences are more likely than differences between hospitals to be attributable to differences in practice patterns.

An important feature of the organization of psychiatric hospital care is that individuals with diminished ability to pay are often treated in state and county hospitals while those who can pay have greater access to general hospitals and nongovernmental psychiatric hospitals. Thus, a system which reduced flexibility of payments and made some patients appear "unprofitable" would be implemented in a setting in which the practice of transfers is already well-established and in which exhaustion of insurance benefits is already a well-accepted reason for making such transfers.

A second important feature of the system of care is that Medicare patients comprise a much smaller part of the market for psychiatric facilities than for medical-surgical facilities. While Medicare beneficiaries account for about 30% of admissions to general medical-surgical beds, they account for about 15% of admissions to psychiatric beds. Psychiatric facilities are therefore in a better position than medical-surgical facilities to decline to treat Medicare beneficiaries

or to give up a portion of the Medicare market if the payment system appears unfavorable.

Medicare Eligibility and Coverage of Mental Health Services. Psychiatric services under Medicare differ in important ways from most other Medicare medical services and from health services to other populations:

Who is Covered. The majority of beneficiaries in excluded psychiatric facilities are under 65, and it appears that they are overwhelmingly individuals who are eligible for Medicare because they are disabled by chronic psychiatric disorders. The elderly are a minority of Medicare beneficiaries in excluded facilities.

What is Covered. Just as the service system for mental health is more complexly differentiated than that for medical-surgical care, so the Medicare benefit structure is different and more limited:

There is a 190 day lifetime limit on Medicare coverage of services in psychiatric hospitals. This limit does not currently apply to services in psychiatric units of general hospitals, but psychiatric hospitals have long complained that this limit gave units an unfair advantage and the Administration has recently proposed extending the limit to units excluded from PPS.

Medicare payment for outpatient visits is limited to $250 per year, with an effective copayment of 50%. This amounts to about 8 one-hour visits in a typical state.

Hospital outpatient department visits are also being limited by administrative procedures which require that care be curative in purpose rather than simply intended to maintain the beneficiary as an outpatient. Again, this is different from medical surgical care where the only requirement is that the care be medically necessary.

How Much is Spent and How. The most recent full data is from 1981, when Medicare expenditures for alcohol, drug, and mental health services were divided as follows:

Psychiatric Hospitals	$190,000,000
General hospitals	$630,000,000
Psychiatrists and psychologists	$115,000,000
Hospital Outpatient Departments	$45,000,000
Other Institutions (e.g: home health, skilled nursing)	$15,000,000
Total	$995,000,000

This was 2.4% of 1981 Medicare outlays ($41.3 billion) compared to 7-18% for psychiatric services in other representative insurance programs. This lower percentage is obviously attributable to differences in beneficiary population as well as to differences in benefit structure. While 29.9% of total program expenditures were on physician and hospital outpatient services, only 16.1% of alcohol, drug, and mental health expenditures were for physician and outpatient services.

Unfortunately, no data is available to determine how much of the payments to general hospitals were made to facilities now excluded from PPS, nor is information available as to the number of admissions to excluded and non-excluded facilities since the start of PPS.

The Performance of Classification Systems. About 10 studies have been funded by HCFA, NIMH, and professional and hospital organizations to assess the feasibility of applying DRGs or a comparable system to determine national reimbursement rates which could replace TEFRA rates.

Performance of Available Systems. No matter what system is examined, neither current DRGs nor variations thereof explain much of the currently-observed variation in length of stay and cost for psychiatric hospitalizations. The current DRGs have been examined using data from many sources and generally account for less than 10% of the variation currently observed in either length of stay or cost per admission. Refinements of the DRGs have also been studied, and though these do better in many circumstances, less than 15% of the variation is accounted for. One system, the Psychiatric Severity of Illness Index (PSOII), provides substantially better power in accounting for observed variation; unfortunately, PSOII depends heavily on "implicit" or subjective methods, uses actual treatment rendered as a variable, and has not been demonstrated to be reliable. Thus it is not, at least yet, a viable tool for determining payments for psychiatric hospitalization.

The performance of classification systems for psychiatric hospitalization is fairly similar to the performance of DRGs for non-surgical conditions in general hospitals. Recent research has shown that while DRGs account for more than 30%

of the variation in cost of surgical cases they account for less than 10% of the variation in cost of non-surgical cases. The poor performance of classification systems for psychiatric discharges does not, therefore, result from the fact that psychiatric diagnosis is imprecise; nor is the lack of relationship between diagnosis and treatment unique to psychiatry. The problem is that psychiatry uses so few surgical procedures that the overall performance of DRGs for psychiatric hospitals and psychiatric units is considerably worse than the performance for medical-surgical hospitals, where surgical procedures are more common. It is not surprising, therefore, that efforts to improve the performance of psychiatric DRGs by using refined diagnostic categories have been quite disappointing and that further work with diagnosis does not appear to be a useful strategy for future work on psychiatric case classification.

Strategies for Improving Classification. One strategy for improving classification systems rests on treating the kind of intensive psychiatric treatment which is delivered in psychiatric units and psychiatric hospitals as a procedure akin to surgical procedures. When this is done, the explanatory power of the classification system rises sharply, though not to the level observed for surgical cases.

A second strategy rests on using mathematical models which predict length of stay or cost uniquely for each patient instead of classifying each patient into one of a relatively limited number of groups. This approach appears to produce more flexible systems which predict actual current variations in cost and length of stay more accurately, but it sacrifices some of the simplicity of the DRG model.

Finally, a classification system should be able to deal with the patients who do not respond to treatment and who are often transferred to longer-term facilities; the cost of these transferred patients to the receiving facilities are typically several times the average for patients in the same DRG. Although transfers could be recognized by adjusting the classification system to pay more for transferred patients, this strategy would not reward the hospital which retains such patients instead of transferring them. A more effective approach may be hospital-specific payment levels based on the ratio of the number of patients transferred out by the hospital to the number of patients received in transfer.

Payment System Alternatives. Some difficulties with implementing existing DRGs or their modifications could be reduced by adjustments to the PPS payment system.

Outlier Policy. The most important of these adjustments would be to recognize short-stay outliers and a larger number of long-stay outliers in addition to current recognition of cost outliers. The logic of this approach is twofold:

Paying a larger number of cases as outliers is effectively a form of risk sharing which reduces the risk that payments to a hospital will be unfair.

Recognizing short-stay outliers creates sufficient savings to fund a larger number of long-stay outliers. A short-stay outlier system also recognizes that a significant group of hospitals has developed an extremely short-stay strategy for managing mental disorder which is qualitatively different from the usual form of hospitalization.

Short-stay outliers would be paid in a manner similar to long-stay--that is, a specific reduction would be made from the usual per case payment for each day by which the length of stay was shorter than a threshold.

Capitation. Capitating psychiatric services may be an especially important approach for the disabled portion of the Medicare beneficiary population. Although these individuals have no higher cost per admission than the non-disabled, they are admitted far more often. This is a situation in which the incentives of capitation are particularly appropriate. The feasibility of such capitation has not been fully explored.

Post-discharge Care. The current structure of the Medicare ambulatory services benefit discourages substituting outpatient for inpatient care, which is an important way of achieving overall savings in other specialties. One way to encourage substitution would be to permit hospitals to include post-discharge care in the cost base for future recalibration of DRG payments.

Lifetime Limits. If Medicare moves away from day-counting to per case payment, it may be useful to eliminate the 190-day lifetime limit on psychiatric inpatient services in psychiatric hospitals. Otherwise that limit may artificially channel patients to certain kinds of facilities, resulting in reduced efficiency without reduced Medicare costs.

State-Level Variation. The substantial differences in the organization of psychiatric inpatient services between states may make state-level adjustements in PPS rates advisable.

Data to test a number of these classification and payment options were not available for this report but will become available in the next two years.

Impact of Implementing PPS for Excluded Facilities. Simulations of the payment impact of either the existing PPS or a PPS based on refinements of the DRG system indicate that there would be substantially larger payments for some hospitals and substantially smaller payments for others. The shifts involved are in many cases substantial--more than 10% of Medicare payments in a majority of cases and more than 25% in a significant minority. It is not possible to predict confidently how hospitals would respond to such shifts. The only real data on the response of suppliers of psychiatric services to changes in payment are evidence that the volume of psychiatric admissions increased in Maryland under a prospective system and that a cap on length of stay results in more transfers to state hospitals under Medicaid.

The shifts in payment for psychiatric services correlate strongly with the shifts which will occur for other services in the same hospitals when PPS is fully implemented--that is, hospitals whose medical-surgical services tend to gain under PPS also tend to gain in their psychiatric services while the reverse is also true. But the correlation is far from perfect--knowing the effects of PPS on a hospital's medical-surgical services permits an explanation of 25 percent-50 percent of the impact on psychiatric services. The other 50-75% of the impact is not predicted.

Policy Implications. These findings have direct implications for the feasibility and advisability of bringing presently excluded psychiatric facilities into PPS:

Implementing any of the prospective payments systems so far tested would result in substantial reallocation of resources among psychiatric inpatient facilities.

The low explanatory power of both DRGs and the credible alternatives to DRGs does not allow confidence that the reallocations of resources would equitably reflect the needs of Medicare beneficiaries.

The high degree of differentiation in the system of psychiatric inpatient care suggests that some of the reallocation would result from failure to fully recognize differences in patient needs between facilities.

The current high rates of transfer between facilities and the apparent high sensitivity of the system to ability to pay suggests that if hospitals perceived Medicare's payments to be inequitable, Medicare beneficiaries with psychiatric disorders would be more vulnerable to discrimination than beneficiaries with medical-surgical problems.

Because little of Medicare's current benefit goes for outpatient services, there are relatively few psychiatrists with enough outpatient Medicare business to have a stake in persuading hospitals to provide full access to Medicare beneficiaries.

Accordingly, bringing excluded psychiatric facilities under any currently available version of PPS appears to be imprudent. Furthermore, such implementation would have relatively limited benefits for the fiscal integrity of the Medicare system.

The analysis of classification and payment options presented above suggests several strategies which can be tested with data which will become available over the next two years. These changes may make a recommendation to include these excluded facilities under PPS both feasible and advisable in the next 2-3 years.

Rehabilitation Hospitals and Distinct-Part Units

As pointed out in Chapter 2, the Medicare program is the largest single payer of care in this Nation's rehabilitation facilities. As a result, any changes in Medicare payment policy can be expected to have a profound effect upon these facilities and their subsequent provision of care. Rehabilitation facilities fall into two general categories under Medicare payment rules: first, hospitals, either independent or self-contained within a larger medical center, and second, defined (distinct) units of other institutions.

Defining Rehabilitative Care

Care provided in these facilities emphasizes the treatment of functional limitations and disability, whereas acute medical services are primarily concerned with pathology and impairment. Discussants of rehabilitative care are careful to distinguish among pathology, impairment, functional limitation, and disability (Nagi, 1964). Pathology is any abnormal change in anatomy or physiology resulting from disease or trauma. Impairment is the physiological, anatomical, or mental abnormality, resulting from an active or past pathology, congenital deformity, or

long period of muscle or organ disuse. Significant impairments may result in functional limitations or organs, systems, or the body as a whole. A disability occurs when a functional limitation interferes with a person's ability to perform the role and tasks defined by his socioeconomic environment. Rehabilitative care differs from acute care by its focus on the restoration of lost functional capacity and the elimination of disabilities.[7]

A prospective payment system for rehabilitation care must recognize the distinctive characteristics of these services. These distinctive characteristics are reflected in at least three different patterns of care:

- o referral sources,
- o admission procedures, and
- o interrupted rehabilitative care.

Referral Sources. Whereas acute care hospitals admit most of their patients directly from the community, most patients admitted to rehabilitation hospitals

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[7]The World Health Organization (WHO) uses the terms "disability" and "handicap" in place of functional limitations and disability though their classification of health conditions is consistent with Nagi (1964). WHO defines "disability" as a limitation "reflecting the consequences of impairment in terms of functional performance and activity by an individual." According to WHO, "handicaps" refer to "the disadvantages experienced by an individual as a result of impairments and disabilities; handicaps thus reflect interaction with the adaption to the individual's surrounding" (WHO, 1980).

and units are referred from other hospitals. Chapter 3 noted that about two-thirds of the 1980 referrals to independent rehabilitation hospitals sampled came from other hospitals, while another 10.4 percent were from within the hospital (Mullner et al., 1983). For self-contained rehabilitation hospitals and defined units, primary referral sources were, respectively, other hospitals within the larger medical center and other sections of the hospital of which they formed a part. Referrals from home accounted for only 9.7 percent of all admissions to the reporting facilities, while nursing home referrals accounted for only 2.0 percent of admissions.

Admission Procedures. A preadmission screening is normally conducted to determine whether patients are likely to benefit from a comprehensive medical rehabilitation program or at least warrant an extensive inpatient assessment. This screening consists of a review of the individual's condition and past medical record. Indications of a need for an intensive inpatient rehabilitation program are problems in self-care, mobility, bowel or bladder management, medical stability, pain, or a need to design special safety precautions (DHHS 1980).

For rehabilitation patients the first 3 to 10 days after admission are typically devoted to an extensive evaluation of the patient's physical and mental status, and their potential to benefit from an intensive inpatient program. If this multidisciplinary evaluation indicates that the patient has little or no chance of benefiting, then the patient is discharged. For a patient with rehabilitative potential, the treatment team designs a care plan, which is updated periodically based on the patient's progress. The decision to discharge depends on the

treatment team's determination of whether the patient will continue to benefit from the inpatient services (DHHS, 1982).

Interrupted Rehabilitative Care. Rehabilitative inpatient care is sometimes interrupted by conditions requiring acute care, either a recurrence of the underlying problem creating the disability being treated or a new condition or complication. Acute care may be provided in the same institution if the rehabilitation is being given in a defined unit of an acute care hospital, or the patient may require transfer to an acute care hospital.

Systems Issues

Prospective payment policies for rehabilitation care must further recognize systems level issues that lead -- at least in part -- from distinctive patterns of individual rehabilitative services. These include:

- o linkages between rehabilitative and acute-care facilities, and
- o the potential for alternative sources of rehabilitative care.

Almost 80 percent of rehabilitation patients enter these facilities after a stay in an acute care hospital. Another 12 percent of rehabilitation stays go back to the acute hospital as part of interrupted stay or as a disposition on discharge from rehabilitation. Upon discharge, the patient may go to a nursing home or require outpatient or home health care. In addition, skilled nursing facilities

(SNFs), chronic-disease hospitals, home health care agencies and outpatient clinics offer qualitatively similar rehabilitative care.

Because rehabilitation generally occurs after acute care, decisions made in the acute setting affect the timing and the very fact of rehabilitation. If and when a patient is referred for rehabilitation will affect the overall cost of rehabilitative services. Post-acute patients, for example, incur lower charges on average. Conversely, some rehabilitation patients (e.g., spinal cord injuries) may require several separate admissions/referrals or may become acutely ill from complication or exacerbations and need acute care again. Stroke, brain injury, and hip fracture patients are infrequently admitted, whereas many spinal cord injury and amputation patients are returnees, and represent almost a quarter of the total. Readmissions generally incur lower charges (except hip fractures) and shorter lengths of stay (except hip fractures and back disorders).

The availability of rehabilitative services from other Medicare covered providers -- skilled nursing facilities, chronic-disease hospitals, home health care agencies, and outpatient clinics -- poses a second systems issue; namely, that of distinguishing the difference in care received in different settings. Preliminary analysis of Medicare (PATBILL) data indicates that rehabilitation facilities are highly skewed geographically. Some functionally limited individuals, especially those who reside in areas without rehabilitation facilities, are now receiving rehabilitative care for comparable conditions from alternative providers, such as skilled nursing facilities. This raises questions concerning the efficacy of care provided by these different providers. Do rehabilitation facilities provide different rehabilitative services from those provided by acute care hospitals, skilled nursing

facilities, chronic-disease hospitals, home health care agencies, or outpatient clinics? If so, are these services more efficacious? To date, there have been few, well-grounded cost-benefit or cost-effectiveness studies of rehabilitation health services. Furthermore, there are no conclusive studies comparing the cost-effectiveness of treatment in rehabilitation facilities to rehabilitative care offered by other providers.

To some degree, the specifications of the Medicare benefit package (see Chapter 2), in combination with incentives provided by the different reimbursement schemes for different delivery settings that Medicare currently has in place, will determine the patterns of utilization across hospitals, SNFs, home health care, and so on for patients in need of rehabilitative care. Whether the current mix of Medicare benefits and incentives over various delivery settings promotes the most efficient utilization of resources, however, is far from clear. For example, the Medicare benefit package may foster different perceptions of a needed episode of care by patients, providers, and the Medicare program. For an inpatient provider, an episode of care begins with the acceptance of a patient for care and terminates with the patient's discharge.

For an acute care hospital, then, the transfer of a patient to a rehabilitation facility ends an episode. The patient's episode, though, actually continues in another facility. Medicare defines an episode of care under Part A not in terms of an admission and discharge, but rather as the extent of Medicare's financial responsibility for the services delivered to its beneficiaries. Episodes or "benefit periods" begin when a patient enters an institution providing hospital or certified

skilled nursing care and ends when the person has not been an inpatient for 60 consecutive days.

Under PPS for acute-stay hospitals, these differences in defining episodes of care may offer financial incentives for inefficient resource utilization. The PPS encourages acute care hospitals to control costs and limit length of stay. However, if patients are discharged or transferred too quickly to post-acute care settings (including rehabilitation), where reimbursement remains on a retrospective-cost basis, the objective of cost-effective care may not be achieved.

Developing a Classification System

Since October 1984, the Health Care Financing Administration[8] has examined the question of resource utilization in rehabilitation facilities as a foundation for development of a classification and payment system for this specialty class. Consistent with the goals and criteria established in Chapter 3, this work first addressed the effects of patient (case-level) factors or "variables." Secondly, it explored the extent to which costs varied across institutions and why. For example, do freestanding hospitals cost more to provide similar services than do units of acute hospitals? Is rural care cheaper than care in urban areas for these patients? To what extent is such variation attributable to practice styles versus cost of living differences?

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[8] Under a Cooperative Agreement (No. 15-C-98489/0-01) with the HCFA Research Center at the Rand Corporation/University of California at Los Angeles School of Public Health and the Medical College of Wisconsin.

Data for these analyses came from two principal sources: 1) HCFA records, especially the stay (PATBILL) files for 1984 and the providers of services (POS) files, and 2) information collected by a national survey of rehabilitation facilities.

This survey included abstracting a random sample of approximately 80 medical records from each of 100 rehabilitation facilities, billing records on the patient stays corresponding to the abstracted records, and facility information provided by telephone interviews with the facility or unit administrator.

These two sources of data complemented each other. The HCFA data provided information on HCFA beneficiaries treated in excluded rehabilitation facilities. It covered all such facilities and potentially all patients covered under Medicare. By contrast, the sample survey data covered fewer facilities but included all types of patients and more types of information to provide a richer data base. The information items collected were those considered by rehabilitation professionals to be most germane. These included functional status and indicators of levels of social support (e.g., marital status) in addition to diagnostic measure descriptors. However, the quality of the medical records from which this information was abstracted limited the detail of analyzable information. To assure comparability, the data had to be collected at the lowest level commonly available. Nonetheless, this data set provided the best source of information on functional status, specific models of therapy and various measures for development of a treatment requirement of "severity" scale. Subsequent analysis of patient and facility variables were taken directly from those data sets with only modest transformations.

For classification purposes, the long list of diagnoses was reduced to 11 basic diagnostic categories modeled after those developed by Dr. John Melvin of the Medical College of Wisconsin for his diagnosis scheme and closely adhering to the list of accepted categories for exclusion as a rehabilitation facility. (A category was created for burns but rarely used in analysis because it contained so few cases.) The distribution of cases from the survey and HCFA data across the diagnostic categories is shown in Table __ for free-standing hospitals and units. The relative frequency of diagnostic categories in the survey file for patients 65 years and older generally corresponded to that in the HCFA file. Three conditions -- stroke, hip fractures, and arthritis -- accounts for approximately two-thirds of rehabilitative services for the Medicare elderly.

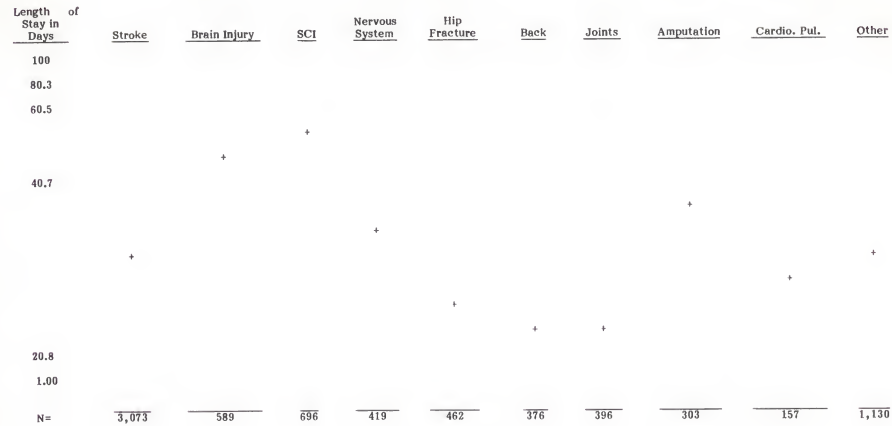
Further subdivisions of several categories were done initially to distinguish traumatic and nontraumatic injuries. The assignment of diagnoses to these major categories was done on the basis of clinical judgment. In addition, the functional status list was subdivided into two areas. One addressed items usually found in an Index of Activities of Daily Living (ADL) like that developed by Katz (19__). The other measure concerned mobility, such as horizontal ambulation and vertical mobility (stair climbing).

Paralysis modifiers were organized into an ordinal scale on the basis of increasing expected disability, from no paralyses to quadriplegia. Finally, three measures of resource utilization were available: length of stay (LOS), total charges, and average daily charge.

In order to identify the variables most associated with variations in resource consumption, the relationships between individual characteristics and LOS were first examined through a series of univariate analyses. Secondly, in order to determine how much of the variation in per-case charges can be explained by various patient and facility characteristics, a series of multiple regression equations were estimated. The following discussion reviews the results.

Univariate Analyses. Figure 4-__ shows the distribution of mean LOS by diagnostic category. If the few burn cases are dismissed, spinal cord injury (SCI) patients have the longest lengths of stay followed closely by brain injury cases. The variation in most categories is considerable. The longer LOS of SCI patients is more evident when those patients admitted to rehabilitation for the first time are isolated. The majority of rehabilitative readmissions falls in the SCI category and are largely due to complications such as urinary tract infections, or part of a planned course of rehabilitation. The readmissions tend to be much shorter. The mean for a first SCI admission was 49.3 days compared to 29.5 days for a readmission.

FIGURE 1: DISTRIBUTION OF MEAN LENGTHS OF STAY BY MAJOR DIAGNOSTIC CATEGORIES



dependency and reduced mobility on admission (though the relationships are not linear or "constant"), and the increased level of paralysis (especially in regard to paraplegia and quadriplegia).

LOS was also found to vary with both admission source and disposition on discharge. Most patients (78 percent) came to rehabilitation from an acute hospital. The difference in LOS in admissions from the same or different hospitals paralleled differences between units and free-standing rehabilitation hospitals, where the latter had longer LOS. At discharge most patients went home (88 percent). In some charts there was a specific plan for formal supportive services after discharge. The LOS was substantially affected by discharge location in only three anticipated instances. Patients who were either transferred to an acute hospital, died, or left against medical advice had shorter lengths of stay.

Regression Results. Several different regression models, using a sample of over 5,000 patients, were constructed to judge the importance of different groups of variables in explaining charges.[3] The first model was based on the current system of Diagnosis Related Groups used to reimburse acute hospital care. This specification included the 10 diagnostic groups listed in Figure 4-___ (burns excluded), the patient's age, and whether surgery was performed during rehabilitative care. It further included two payment system adjustment factors: the wage index, and whether the patient was hospitalized in a teaching facility. Teaching facilities were defined as those with a residency program in physiatry.

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[3]The dependent variable was the natural logarithm of total stay charges.

These DRG-like specifications explained only 12 percent of the observed variance. Compared with the group of stroke patients, most of the other diagnostic groups were charged less for their stays, with the back disorder and arthritis groups being the least expensive. Spinal cord injuries, in contrast, were charged 25 percent more. Controlling for diagnosis, post-operative patients and younger patients incurred lower charges. Training facilities charged more and facilities with wage costs 100 percent above the average charge almost 50 percent more.

The second model consisted of a complete set of the patient descriptors at the time of admission to the rehabilitation facility available from the abstract record, but did not include any information on the facility. In addition to diagnosis and age, the independent variables included whether the patient had surgery before entering rehabilitation, level of functioning at admission, emotional status at admission, special problems (decubiti, infection, contracture, catheter, or noncatherized neurogenic bladder), where the patient was admitted from, and whether the patient came from outside the facility SMSA and/or from a rural area.

For this model, the explained variance increased to 27 percent. The functional status variables; the paralysis score; the scores for cognition, communication, and emotional stability; and the presence of special problems were significant predictors of charges. These results support the belief that data elements beyond those used in the current PPS system are important in rehabilitation care. The addition of these variables eliminated many of the differences between diagnostic groups, though it substantially raised the explanatory power. In other words, while classifying patients by diagnosis captures

some of the differences in charges attributable to functional status and other important "rehabilitation" variables, diagnosis in and of itself does not account for variation in costs across rehabilitation facilities.

Where the patient was admitted from also affected charges. Patients who are admitted from the same hospital's acute units or from home are charged less than patients who are transferred from another acute hospital. This may be the result of selection in the channeling of patients within a hospital or to a different hospital.

A third model introduced factors describing the course of the patient's rehabilitation stay, such as patient's functional progress and discharge status. This allowed for another large increase in explanatory power -- to 34 percent. Generally, the model found that the more the patient's functioning improves, the more the stay costs. On the other hand, charges did not increase with improvements in mobility. Interrupted stays incurred 43 percent higher charges, while stays cut short by discharge to an acute hospital or by death or by the patient's own decision to leave were billed 30- to -50 percent less.

A fourth model added facility characteristics, and yielded only slightly more explanatory power than the specificiations limited to patient characteristics. However, the facility variables correlated significantly with charges. Teaching facilities incurred the highest charges. Freestanding hospitals charge more per stay than units; their daily average charges are slightly lower and lengths of stay longer. Whether this finding reflects unmeasured differences in the freestanding case mix (i.e., more resource intensive patients) or different treatment patterns is

unclear. In contrast, hospitals that are part of a medical complex charged less and have shorter lengths of stay than either units or freestandings. There is no obvious explanation for this observation. An investigation of referral patterns from acute hospitals to the different types of rehabilitation facilitation treatment might explain the differences observed in length of stay and charges across facility types and by patient origin.

Lastly, there was substantial regional variation (up to 30 percent) in rehabilitation charges. Two of the four HCFA-designated regions with higher total charges were actually less expensive per day, but had substantially longer lengths of stay on average. On the other hand, the bills in region 9 run over 30 percent higher solely because of higher daily charges.

It should be noted that when these models were estimated for a subset of Medicare-only patients (64 percent of the larger sample), the results generally mirrored those of the full population. Age had no significant effect in this older group. ADL and ability to communicate at admission had little or no effect on charges, but functional progress still had a major effect.

Implications For Policy

Work undertaken over the last two years has added substantially to HCFA's knowledge base about the existing delivery system for rehabilitative care, and the feasibility of developing a classification system for it. Findings indicate significant differences in average length of stay and charges both across geographic regions and facility types. Freestanding hospitals are marked by longer

stays and lower per diem charges than distinct-part units in hospitals. The vast majority of rehabilitation patients are received from acute-care hospitals, and three conditions -- stroke, hip fracture, and arthritis -- account for approximately two-thirds of rehabilitation services for the elderly.

The analyses presented also suggests that it is indeed possible to construct a pricing system on a per-case basis, based on research in which patient-level characteristics can be used to predict resource consumption for rehabilitative care. The amount of explained variance for total charges available from patient's characteristics is impressive.

Nevertheless, these findings contain some important caveats. As originally argued by rehabilitative experts as well as by the Department in the December 1982 Report to Congress, diagnosis proved less important than functional descriptions in explaining observed variations. The patient status measures, though were crude -- "lowest common denominator" -- measures which could be gleaned from diverse and uneven record-keeping practices. Facility characteristics did not increase the explanatory power as much as had been expected either. It is also important to recognize that most of these analyses used charges, not costs.

The implication of this research on classification systems thus far is that a substantial effort would be needed before the next major steps are undertaken: namely,m the development and testing of technically feasible payment options to develop a pricing system along the lines of the presently implemented DRG system for acute-care hospitals. A payment system for rehabilitative care could be very patient specific, especially since a substantial part of the case load is for acute

treatment needs. Analysis of LOS for high volume diagnostic categories reveals that a significant number of cases in these facilities can be treated in relatively short, well-defined, and replicable periods of time. Additional patient status measures would probably be necessary, however, and these measures do not presently appear on standard discharge data bases. Extensive effort would be required to develop a nationally accepted set of these measures for application in a payment system.

The second major and perhaps more important implication--at least in the near term--stems from the close linkage between rehabilitative care and the acute hospital. Because rehabilitation is so closely linked with post-hospital care, the development of a payment system for rehabilitation services in advance of additional study of the "interface" of these services with the broader health care system would be premature. Without a full understanding of the patient flows between acute care, rehabilitation, and other forms of post-hospital care, a separate PPS for rehabilitation care could easily create perverse incentives for inefficient patient transfers. Instead, the more cost-effective solution may stem from developing an episode of care approach that would provide payment across acute hospital and rehabilitation settings. Such an arrangement could clearly change the relationship between the acute hospital and the rehabilitation facility. It could also change the flow of patients.

At present, little is known covering the factors associated with a decision to transfer a patient to rehabilitation. On the surface under the current PPS system, the hospital has an incentive to move the patient quickly. There is no disincentive

to use a rehabilitation facility as opposed to a nursing home, except perhaps the costs and inconvenience produced by limited availability of rehabilitative beds.

Under an episode of care approach, the hospital could have strong incentives to opt for the less expensive care, perhaps represented by the nursing home.

Any system of payment focusing on the episode of care across acute and post-acute settings will thus require more information about the linked delivery system as it now exists, as well as the relative efficacy of different post-acute hospital treatments for defined patient groups. At that point, payment options could be developed and tested with impact analyses and also demonstrations.

Chronic-Disease Hospitals

Chronic-disease or "long-term" hospitals are the least understood of the excluded hospital types. Virtually all relevant research has been done in Massachusetts, and there, hospitals licensed as "long term" vary significantly from one another in the patients they serve and the services they provide (Massachusetts Department of Public Health, 1983). One study found what was termed different "styles" of care in these facilities (Bishop, 1976). Similarly, there are states where

chronic-disease hospitals are not recognized as such -- where similar types of patients are necessarily being treated in other kinds of facilities.

Defining Chronic-Disease Care

Anecedotal evidence suggests that the long-term hospital patient may be of any age. Although older people have accounted for most of the long term hospital case load, increasing numbers of younger people with chronic conditions, such as muscular dystrophy and spinal cord injury, are also patients in these facilities. The reason for chronic-disease hospital admission may be multiple diagnoses or a single catastrophic diagnosis; these patients can be severely impaired, requiring intensive nursing and/or technological support. Although they are generally treated less aggressively than acute care patients, physician involvement is frequent -- to monitor medication and ongoing treatment or to treat acute medical episodes. The goal of chronic-disease hospital care is more often to maintain than to cure. Some percentage of these hospital patients, however, are discharged to facilities providing lower levels of care, or home.

Chronic-disease hospitals, too, have been profiled only anecdotally, but it is generally believed that long-term hospitals look much like acute care hospitals, except that they do not provide surgical or maternity care, or the most sophisticated diagnostic testing. Chronic-disease hospital patients may require ventilators and other "high" technologies. They may also be furnished with simple assistive devices, such as adapted eating utensils. Chronic-disease hospitals are hospitals, but because their patients have chronic conditions and long stays, they

are also residential facilities. Some chronic-disease hospitals, then, have developed a social as well as medical aspect.

Systems Issues

The current chronic-disease hospital system is poorly defined. It is by no means clear that the 88 excluded hospitals represent a distinguishable element of the health care system. First, they are located in only about half the states; it would seem that patients needing the kind of care provided in these hospitals are treated in the other states as well. Second, rehabilitation hospitals, which constitute a further excluded hospital class, face more rigorous exception criteria than do these hospitals. It is, therefore, possible that hospitals providing substantial levels of rehabilitation services but not meeting all of HCFA's standards for rehabilitation hospitals were excluded as chronic-disease hospitals instead. Thirdly, those hospitals are interstitial facilities; that is, they deliver care sometimes provided in acute care hospitals and, less frequently, in skilled nursing facilities. Although chronic-disease hospitals ideally provide a distinct kind of care -- intensive medical and nursing services for long periods of time -- the excluded chronic-disease hospitals may be providing whatever is necessary to fill gaps in the local continuum of care. A related point is that state policy may exert considerable influence on what kind of care is provided in chronic-disease hospitals. Licensure and Medicaid payment policies may edge services into or out of chronic-disease hospitals.

A Research Strategy

Because chronic-disease hospitals have been such a poorly defined and largely unstudied sector of the health care system, any patient-level research to develop a case-mix classification and subsequent pricing system must be preceded by an understanding of the characteristics of hospitals currently excluded under this designation, as well as of hospitals that might potentially be excluded. Without this preliminary aspect of research, if the pool of these excluded hospitals does not represent those facilities treating "true" chronic-disease patients, any pricing system based on this excluded class data will be an artifact of classification -- not a calculation of real resources used. The distribution of funds could be artificially high or low depending on a facility's exclusion status. Such a distortion could prolong or exacerbate any existing inappropriate placement, including skimming of chronic-disease patients or of other kinds of patients in those hospitals. A less clearly or fairly defined patient or facility classification system may also be perceived as arbitrary and less than legitimate.

For these reasons, the Health Care Financing Administration[9] has undertaken research pertaining to chronic-disease hospitals in three areas over the last 2 years:

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[9] Under Cooperative Agreement No._____with the HCFA Research Center Consortium at Boston University and Brandeis University in Massachusetts.

- an examination of the characteristics of hospitals that are currently excluded under this designation, and of hospitals that might potentially be excluded under this designation;

- an initial inquiry into the role of those hospitals as a component in the continuum of care between acute care hospitals and skilled nursing facilities, as a general first step in developing a classification system for patients in these facilities, and a preliminary financial impact on these hosptials and on the Medicare Trust Fund of bringing these hospitals under PPS versus letting them remain under TEFRA.

This research is reported below, and implications for payment options for this class of hospitals are subsequently discussed. Data for these analyses are based on four sources of information:

- The American Hospital Association (AHA) 1983 Annual Survey. Of the hospitals on the HCFA excluded list, over 90 percent responded to the AHA survey.

- A primary data collection effort that involved discussions with administrators from a sample of 25 hospitals on the HCFA excluded list. Hospitals were chosen according to several criteria: state, bed size, ownership, specialization, such as cancer and chest hospitals, as well as case mix.

- From the 28 hospitals selected above, additional discussions were held with the directors of nursing in eight facilities.

- HCFA stay files for 1984 and the Provider of Services (POS) files.

Hospital Characteristics. The first, and rather striking, finding about these hospitals is that there are a substantial number (over 50 percent) on the HCFA excluded list -- at least 60 -- which were found to have no chronic care beds. Twenty-two of these hospitals self-identified as rehabilitation hospitals, eight as psychiatric hospitals and three as children's hospitals (see Table 4-). Discussions with the hospital administrators further supported this contention. According to one facility, incomplete cost reports were preventing exclusion as a rehabilitation hospital. Another claimed that HCFA erred in assigning it a chronic-disease provider number. A third hospital reported that it has just been granted exclusion as a rehabilitation, as opposed to a chronic-disease hospital, although it appeared on the most current designated list. Overall, those various sources of information would suggest perhaps a quarter to a third of the hospitals exclusion under the chronic-disease designation might qualify for an exception under another designation.

There were 33 hospitals that both identified themselves as chronic care hospitals and appear on the HCFA list. These institutions, perhaps, are most representative of those providing "true" chronic-disease hospital services. Perhaps of most interest is the very long average length of stay (ALOS) of patients in these institutions. With one exception, all ALOSs are over 60 days and, with three

exceptions, all are over 100 days. (This group will be discussed in greater detail below.) Most of the 22 rehabilitation hospitals on the HCFA list have much shorter ALOS. Fourteen have ALOS under 60 days and 18 have ALOS under 100 days. There is probably no clear differentiation between certain types of rehabilitative facilities and chronic-disease hospitals. The differentiation, however, does seem clearer in the case of psychiatric and children's hospitals. Nevertheless, the rationale for eight psychiatric and three children's hospitals on the chronic-disease list is not obvious, though either an institution's perception of mission, or relative ease of eligibility for exclusion may provide an explanation.

Table 4
Hospitals Excluded as Chronic-Disease

Self-identified[1] as	
Chronic-care	33
Rehabilitation	22
Psychiatric	8
Other Specialty Hospitals	13
Tuberculosis and Respiratory Disease	6
Children's	3
General Medical/Surgical	5
Other	4
	94[2]

1Self-identified to the American Hospital Association's Annual Survey.

2The totals of HCFA exempted chronic-disease hospitals do not correspond with total number of hospitals in this table because not all hospitals responded to the AHA survey (1983).

The 28 remaining hospitals on the HCFA exclusion list are characterized by a mixture of bed types. Many have a large percentage of psychiatric beds and some a large percentage of rehabilitation beds. Some of these hospitals are institutions with a large number of nursing home beds. For example, one hospital examined houses a small number of acute-care beds available for patients routinely cared for in SNF and ICF-level beds. The acute-care beds are exempted under PPS. The state licenses beds in this facility as chronic-disease hospital beds, though the administrator conceded that these beds are virtually indistinguishable from the SNF and ICF-level Medicaid beds except that they are covered under neither program. For many patients in this hospital, according to the administrator, a chronic-disease hospital bed is where a patient finds oneself when Medicare benefits are depleted and the "spend-down" limit for Medicaid eligibility has not yet been reached.

Only a small number of all excluded chronic-disease hospitals reported sources of revenue. Of those that did, five hospitals had under 1 percent Medicare days, three had 1 percent - 5 percent Medicare days and four had 5 percent - 10 percent Medicare days. One had 14 percent, one had 22 percent, and one had 47 percent Medicare days (though only 3,127 days total). To the extent this is a representative sample, Medicare patients clearly do not comprise a significant part of the case load in most of these excluded hospitals.

Lastly, there were 25 hospitals that were not on the exclusion list, but have either self-identified to the American Hospital Association as chronic care hospitals or have chronic care beds. Seven of these had mostly acute care beds and

a short ALOS, such that they would not qualify for the HCFA exclusion. The remaining 18 all had ALOS greater than 60 days and 11 had ALOS greater than 100 days. Though several of these were institutions with just chronic care beds, most also had a disproportionate number of nursing home beds. Possibly, those 18 hospitals could qualify for an exclusion at some future point.

"True" Chronic-Disease Hospitals. The emergent picture from the research and analysis indicates that these hospitals are themselves a diverse, rather anomalous class. They are not acute care hospitals nor are they nursing homes; neither do they particularly resemble one another. What they would appear to share is a convergence of purposes: providing high levels of care for long periods of time. As suspected, they have grown up in the interstices of acute, rehabilitation, and nursing home care. Their diversity results from the fact that the role they fill varies with individual state regulatory and financing policies, as well as the surrounding configuration of acute, rehabilitation, and nursing home beds.

More specifically, there are several commonalities across this group:

- The Provision of Extended Care. This is suggested by the very long ALOS in most of the institutions identifying themselves as chronic care facilities. Some facilities are highly specialized, providing care for cancer or chest patients alone. Others treat a variety of diagnoses and combinations of diagnoses: cardiovascular disease, stroke, spinal cord injury, head injury, respiratory illness, and multiple sclerosis, among

others. Some facilities provide care to terminal patients specifically, and, while a small percentage of chronic-disease hospital patients return home or transfer to nursing homes, the conditions of a considerable proportion do not improve.

- The Provision of Hospital Level Care. Services provided by most of these hospitals in-house include rehabilitation, long term skilled nursing, dental services, electrocardiography, pediatric services, occupational, physical, recreational, respiratory and speech therapy, pharmacy and social work services. If services provided through formal contractual arrangement are considered, most of these hospitals also provide histopathology laboratory, blood bank, optometric, and intravenous admixture services. Most other services are provided in at least several of these hospitals.

- Geographic Location. Twenty of the 33 hospitals are in Massachusetts and all are in states on the central or northern east coast, from Virginia northward.

- Institutional Histories. One group of facilities appears to be descended from tuberculosis and polio hospitals -- that is, from hospitals founded to solve specific, large-scale health problems. Some of these facilities had been almshouses earlier. A less common institutional history is of nursing homes upgraded to hospitals. In these cases, the nursing home

has sought to expand its function in response to new patient populations and the costs of caring for them. The transition to a hospital almost always entails a change in (state) licensure category as well as Medicare certification. When, in contrast, a tuberculosis hospital becomes a long term hospital, such adjustments may be unnecessary.

- Patterns of Ownership. Chronic-disease hospitals include both public and private hospitals. The public hospitals are city, county, and state institutions. The private hospitals include facilities sponsored by religious orders, benevolent associations, and foundations. About half of this group are government-owned.

- Variations in Bed Size. About half house chronic-disease hospital beds alone. Others offer nursing home care, and one hospital was a tuberculosis unit attached to a psychiatric hospital. In some facilities, all nursing home beds are assigned to a single level of care. Other hospitals comprise a mix of SNF, ICF, and personal care beds. There would seem to be a relationship between bed mix and ownership: exclusively chronic-disease hospital facilities are almost exclusively public. Perhaps only public hospitals have constituencies large enough to support entire institutions. Another possible interpretation is that private facilities seek double licensure

and certification to maximize their ability to respond to changes in the chronic care market.

Patterns of Care. Patients receiving care in "true" chronic-disease hospitals would appear to follow one of several distinctive patterns of care. First there is a set of patients who receive care after an episode of acute illness and treatment at an acute-care hospital. These patients are too ill to be cared for at home or in a nursing home but no longer require acute-care services. If Medicare-eligibles, these patients are reimbursed on a cost basis until benefits are exhausted. Patients may also be eligible for Medicaid, which pays hospitals for costs or on a prospective basis, depending on state policy. Private third-party payers cover some patients.

A second pattern locates the chronic-disease hospital along a continuum of care. Patients are admitted 1) from nursing homes unable to provide sufficient care, or 2) from rehabilitation hospitals once all possible rehabilitation has been achieved. Different hospitals are more or less integral to local continua of care. Sometimes a single facility offers several levels of care, or share a campus with acute care hospitals, nursing homes, and specialized housing. For others, the continuum can span the community or even the state.

Public hospitals occupy another continuum -- a continuum of insolvency. Truly indigent patients often become dependent on state and county hospitals as do patients whose multiple disabilities put them beyond the mandate of any private facility.

Anecdotally, there is a possible fourth pattern of care -- to simply remain in acute-care hospitals. There is some suspicion that some length-of-stay outliers could be cared for more appropriately and less expensively in long-term hospitals. Similarly, potential chronic-disease hospital patients may go untreated or under-treated in nursing homes. Chronic-disease hospital patients are often seriously ill and unlikely to recover. But depending upon the mix and availability of treatment settings in any one area, similar types of patients may receive close attention in highly developed medical setting, or meet with resigned inactivity where medical resources are inappropriate or scarce.

In short, "true" chronic-disease hospitals are characterized by their capabilities to respond to the need for heavy care over time. This need has been met somewhat idiosyncratically over time, for a variety of reasons: particular institutional histories, changing payment system incentives, State licensing and certification procedures, and the development of life-extending technologies. Their mandate is most often to accomodate the mandates of other health care providers, and to adjust to the exigencies of a rapidly changing health care delivery system. As with rehabilitation facilities, there is little evidence on the efficiacy of care in these facilities. There have been no well-grounded cost benefit or cost-effectiveness studies of chronic-disease hospitals. For now what can only be stated with any certainty is that the rapidly changing delivery system environment promises to shape further this group's provision of chronic hospital-level care.

Impact Analysis

Because of the diversity of institutions in this excluded class, the small levels of Medicare expenditures, and the changing role of these facilities in the continuum of care, there is little rationale for pursuing research to develop classification and payment systems at this point. Instead, HCFA is presently conducting an analysis of the Medicare PATBILL files for FY 1984, in order to evaluate the impact of Medicare reimbursement under TEFRA -- i.e., Medicare exclusion status -- and under a simulated PPS status where the episode of hospitalization (and so payment rate) extends across both an acute stay and a chronic-disease stay. Results will be included when available, sometime around the end of the calendar year.

Implications for Policy

The current HCFA impact analysis is investigating the feasibility of including chronic-disease hospitals under the current PPS, where their cases would be expected to be paid predominantly under the PPS outlier policy. Their inclusion appears feasible to the extent that a majority of these excluded facilities could apply under a different exclusion category (e.g., rehabilitation) and that Medicare represents a marginal payer--because of Medicare benefit limits--in the remaining facilities. A challenge that remains, however, involves the issue of how to reimburse two facilities -- i.e, the acute care hospital and the chronic-disease hospital -- for what in most regions of the Nation would be a single hospital stay.

The issue of linkage of the chronic-disease hospital with the general hospital and the extremely skewed geographic distribution of chronic-disease hospitals also

raises policy concerns similar to those discussed with rehabilitation facilities. Presumably, comparable patients are treated in comparable facilities in other sections of the Nation, with the distinction that these facilities are not separately licensed in their states but certified for Medicare services -- and so not identifiable. The linkage of acute and post-acute health care services, both hospital-level and skilled nursing facility-level, requires further research and analysis. The development and testing of appropriate classification systems and/or payment options can then follow.

At the same time, concurrent research and demonstration efforts within the Department are beginning to move Medicare to capitated systems of care. Research of the development of payment options will need to be consistent and be integrated at each point of progress into existing capitation opportunities and future initiatives that follow into the Administration's plan for overall Medicare reform.

APPENDIX A

TO THE REPORT ON EXCLUDED HOSPITALS

SETTING NATIONAL PER-DISCHARGE PRICES FOR EXCLUDED PSYCHIATRIC FACILITIES: THE PROBLEM, THE SERVICE SYSTEM, CLASSIFICATION RESEARCH & POLICY OPTIONS

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THIS BACKGROUND PAPER WAS PREPARED UNDER JOINT SPONSORSHIP OF HEALTH CARE FINANCING ADMINISTRATION AND THE NATIONAL INSTITUTE OF MENTAL HEALTH AS A SUMMARY OF THE FACTS AND ISSUES RELEVANT TO BRINGING EXCLUDED PSYCHIATRIC FACILITIES UNDER PROSPECTIVE PAYMENT. IT IS THE WORK OF THE AUTHORS AS INDIVIDUALS AND HAS NOT BEEN ENDORSED BY ANY OF THEIR ORGANIZATIONS.

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INTRODUCTION

"In the annual report to Congress under subparagraph (A) for 1985, the Secretary shall include the results of studies on--

...

(ii) whether and the method under which hospitals, not paid based on amounts determined under such section [the Medicare Prospective Payment System], can be paid for inpatient hospital services on a prospective basis as under such section;" (P.L. 98-21 sect. 603(a)(1)(C))

The problem of bringing presently excluded psychiatric facilities under the Prospective Payment System is really the problem of how to set equitable, prospective per case payment rates for psychiatric hospitalization. The Tax Equity and Fiscal Responsibility Act (TEFRA) set the rules under which excluded hospitals are now paid. TEFRA is not a prospective payment system, because it only set "targets" for, or limits on cost-based payments. But those limits can move upward no faster than PPS rates and they are set on a per-case basis; since hospital costs have historically moved up at twice the general rate of inflation, the TEFRA limits will rapidly become, for most hospitals, per case payment rates which are known in advance. Thus, neither prospective payment nor payment by the case is at issue. Rather, the central problem in bringing these facilities under PPS is establishing payment rates which are more objectively related to patient needs and more regional or national in scope--in contrast to TEFRA, which basically sets the per case payment from the historical cost of the particular hospital and the class of similar hospitals. For this reason it is reasonably clear and reasonably accurate to refer to the

problem of including excluded psychiatric facilities under PPS as a problem of national rate setting.

This report focuses on the two major obstacles to national rate setting:

1. DIFFERENCES BETWEEN PSYCHIATRIC FACILITIES. The mental health services system is extraordinarily differentiated. Just as there are differences between community hospitals and university referral centers in the medical-surgical health care system, so there are substantial--and even greater--differences between hospitals in the mental health services system. Different kinds of facilities play different roles in the system and thus receive different kinds of patients and treat them in different ways.

These differences result in patients with apparently similar clinical characteristics (such as diagnosis and age) being admitted to different hospitals because of differences in their treatment needs. Part I of this appendix describes and analyzes this differentiation of the service system. This analysis shows why it is difficult to bring different groups of hospitals under a uniform payment system. At the same time, identifying the problems suggests approaches to designing a payment system which are discussed in Part III of the appendix.

2. DIFFICULTIES IN PREDICTING THE COST OF NECESSARY TREATMENT. Part II of this appendix focuses on the problem of predicting the cost of necessary treatment for psychiatric patients. This part summarizes a substantial body of research, some sponsored by HCFA, some sponsored by NIMH, and some sponsored by professional and hospital organizations. Briefly, this research shows that diagnosis and other readily available information are very weak predictors of the cost of psychiatric

hospitalization. Systems such as DRGs, which are built on the routinely available data elements predict current costs of care very poorly. If used for reimbursement, such systems would result in substantial reallocations of payments among facilities. Because these systems are such poor predictors, they cannot demonstrate that a new system would be paying comparable amounts for cases with comparable care needs or that the reallocations which resulted would be appropriate. Research reported in this appendix also raises substantial questions as to whether severity of illness, when measured by social functioning or permanent disability, is a major predictor of cost of a hospitalization; this research does not suggest that work on "severity" can promise substantial improvements in per-case pricing in the near future. But, again, the research reported here does indicate that there are variables which do predict cost of care and which might be the foundation of an equitable payment system.

Part III of this appendix assesses the cumulative implications of parts I and II for design of a national pricing system. From each of the problems identified a possible solution emerges. But the major conclusion is that although a potentially satisfactory payment system can be designed, such a system cannot be tested with data currently available. Part III concludes therefore that the present exclusion of psychiatric facilities should not be changed and defines a research agenda which may produce a workable system as soon as two years.

This appendix addresses treatment of alcoholism and drug abuse only indirectly. Some of the studies reviewed include drug abuse patients while others do not. Although facilities providing such care are excluded from PPS, they are excluded under a regulation separate from the law which excludes psychiatric facilities and which mandated this report. A new DRG

system was recently put in place for alcohol and drug treatment; it was designed too recently to be included in the research reported here and thus made earlier research less pertinent while preventing the presentation of current results. The Department is collecting further information on the new alcohol-drug DRGs as part of routine PPS monitoring.

This appendix is the result of cooperative work by four authors--Drs. Howard Goldman and Carl Taube of the National Institute of Mental Health, Dr. Constance Horgan of Brandeis University, and Dr. Stephen Jencks of Health Care Financing Administration. Part 1 is primarily the work of Drs. Taube and Goldman, Part II primarily the work of Dr. Horgan, and Part III primarily the work of Drs. Jencks and Goldman.

PSYCHIATRY REPORT: PART I

THE STRUCTURE OF THE PSYCHIATRIC INPATIENT SERVICES SYSTEM

A. AN OVERVIEW OF THE MENTAL HEALTH SERVICE SYSTEM. The mental health service system is highly differentiated to serve the very diverse needs of the mentally ill. The differences between kinds of psychiatric hospitals is much greater than that seen in most of the general medical and surgical system, and understanding these differences is as important as understanding the differences between, for example, teaching and non-teaching hospitals in the medical-surgical system. This part of the report on psychiatric prospective payment is intended to give the reader an understanding of these differences. Section A of Part I focuses on the kinds of facilities which exist, differences in the way Medicare covers services in them, and the reasons why they are so different. Section B describes trends in the differences between and relative importance of different kinds of facilities. Section C focuses on the differences in the kinds of patients found in different kinds of facilities. Section D describes the differences in the service system from state to state and section E describes the relationship of insurance and payment policies to the structure of the system. Section F summarizes the relationship of the structure of the payment delivery system to the problem of creating a national pricing system.

1. The Psychiatric Hospitalization System. Hospital-based psychiatric care is delivered in five kinds of settings:

a. General hospital beds which are not part of organized psychiatric units ("scatter beds", which are now paid under PPS). Length of stay for patients in these beds is the shortest of all five groups, frequency of psychotic diagnoses is lowest and frequency of neurotic

and substance abuse diagnoses highest. Most psychiatrists believe that care rendered in these beds is more interim and less definitive. Admissions to these beds comprise about half of all alcohol, drug, and mental health admissions to all inpatient facilities, but the exact proportion for Medicare psychiatric admissions is not known.

b. General hospital beds which are part of organized psychiatric units but which have not been excluded from payment under PPS ("non-excluded units", which are now paid under PPS). Although non-excluded units tend to be smaller and to have shorter stays than excluded units, some could have met the exclusion criteria but did not do so because they decided that inclusion under PPS would be fiscally sound.

c. General hospital beds which are part of organized psychiatric units and which have been excluded from payment under PPS ("excluded units", which are all paid under TEFRA). Many of these units, especially the larger units and those in urban and public hospitals, closely resemble psychiatric hospitals in patient characteristics and length of stay. There are about 1200 general hospital units, of which 762 were exempt in June 1985.

d. Beds in psychiatric hospitals which are owned either by investors or by voluntary boards of trustees ("non-public hospitals", which are all paid under TEFRA). These facilities tend to have a very low proportion of patients who are unable to pay and to have lengths of stay which are intermediate between general hospital units and state and county hospitals. Although these hospitals are often spoken of as a group and have a single organization representing them, there are significant differences between voluntary and investor-owned hospitals, one being that almost all growth is occurring in the

investor-owned group.

e. Beds in psychiatric hospitals operated by states or counties ("public psychiatric hospitals", which are all paid under TEFRA). These hospitals serve as a safety net for the psychiatric inpatient system; they usually are required by law to receive all patients, and accept the majority of those who cannot pay as well as a majority of patients who are involuntarily committed for care. They have a higher proportion of disabled and psychotic patients than other types of hospitals and the longest average stays. A total of 464 non-public and public psychiatric hospitals were Medicare participants in June 1985.

2. Medicare Eligibility and Coverage of Mental Health Services. The reader also needs to understand certain features of the Medicare program: who is covered, what is covered, and how much Medicare now pays.

a. Who is Covered. About 30-40% of Medicare psychiatric hospitalizations are for beneficiaries under 65 who are eligible because of permanent disability; although no data is available, it appears likely that most of these beneficiaries are disabled by psychiatric disorders. In the excluded facilities, however, the majority of hospitalizations are for these disabled beneficiaries, (Tables 4 and 5). Thus, in the excluded psychiatric facilities, Medicare is primarily represented by the disabled rather than the elderly.

b. What is Covered. Just as the service system for mental health is more complexly differentiated than that for medical-surgical care, so the Medicare benefit structure is different and more limited. The exclusion of some psychiatric facilities has already been discussed.

But there are two other differences with significant implications:

(1) There is a 190 day lifetime limit on Medicare coverage of services in psychiatric hospitals. This limit does not currently apply to services in psychiatric units of general hospitals, but psychiatric hospitals have long complained that this limit gave units an unfair advantage and the Administration has recently proposed extending the limit to units excluded from PPS.

(2) Medicare payment for outpatient visits which are not hospital services is limited to $250 per year, with an effective copayment of 50%. This amounts to about 8 one-hour visits in a typical state.

(3) Hospital outpatient department visits are also being limited by administrative procedures which require that care be curative in purpose rather than simply intended to maintain the beneficiary as an outpatient. Again, this is different from medical surgical care where the only requirement is that the care be medically necessary.

c. HOW MUCH IS SPENT AND HOW. The most recent full data is from 1981, when Medicare expenditures for alcohol, drug, and mental health services were divided as follows:

Psychiatric Hospitals	$190,000,000
General hospitals	$630,000,000
Psychiatrists and psychologists	$115,000,000
Hospital Outpatient Departments	$45,000,000
Other Institutions (e.g: home health, skilled nursing)	$15,000,000
Total	$995,000,000

This was 2.4% of 1981 Medicare outlays ($41.3 billion) compared to

7-18% for psychiatric services in other representative insurance programs. This lower percentage is obviously attributable to differences in beneficiary population as well as to differences in benefit structure. While 29.9% of total program expenditures were on physician and hospital outpatient services, only 16.1% of alcohol, drug, and mental health expenditures were for outpatient services.

Unfortunately, no data is available to determine how much of the payments to general hospitals were made to facilities now excluded from PPS, nor is information available as to the number of admissions to excluded and non-excluded facilities since the start of PPS.

3. Reasons for Greater Differentiation. There are several, somewhat overlapping reasons why the mental health service system is so much more differentiated than the medical-surgical system.

a. The Variety of Patient Needs. One reason for the greater degree of differentiation in the mental health system compared to the medical-surgical system is the greater diversity of patient needs. In mental health, needs may be defined clinically in terms of diagnosis, level of impairment/disability, and treatment requirements. This is closely analogous to the medical-surgical system. But in the mental health system needs are also defined socially in terms of the patient's ability to cope with the social demands of living setting in sheltered or unsheltered environments and legally in terms of the need of the patient and society to be protected from harm which the patient might cause. Although behavioral problems and impairments of ability to cope may result from neurologic and other diseases, such results of other diseases are defined as psychiatric problems, given psychiatric diagnoses, and treated in psychiatric settings. The fact that these

psychiatric problems can require long-term inpatient intervention creates a need for special capabilities in the service system.

b. The Variety of Ability to Pay. The need for very long-term services has led to a large part of the population being unable to pay for psychiatric services either directly or through public or private insurance. For a variety of reasons, this medically indigent group is far larger for mental health than for medicine and surgery. Widespread indigence and high costs lead in turn to a very high degree of differentiation between different facilities according to their willingness to accept patients who cannot pay. (Table 1).

c. Reasons for Admission to Inpatient Care. To a far larger degree than in medical-surgical settings, patients are admitted to psychiatric inpatient settings because society or their living environment can no longer cope with them rather than because a specific therapeutic objective appears achievable through care which can only be provided in an inpatient setting. This commonly results in a need for custodial functions which are differentially delivered only in some parts of the service system.

d. Non-response to Treatment. To a degree far greater than in medical surgical care, it is common for some hospitals to specialize in "treatment failures"--patients who have failed to respond to treatment after a moderate period of time in another setting. This specialization may be deliberate, as is the case at some voluntary psychiatric hospitals, or may result from inability to refuse to admit non-responders, as is the case with state and county hospitals. Sometimes treatment failures are defined in terms of ability to pay--a patient who fails to respond before his/her insurance or other

resources are exhausted. This also results in transfers between settings but not necessarily the same classes of settings.

e. Involuntary Treatment. Involuntary patients are exceedingly uncommon in general medicine and surgery; they are relatively common in psychiatry. These involuntary patients require special treatment facilities, special capabilities, and special treatment approaches. Some facilities simply refuse to accept such patients while others either choose to accept them or are required by law to do so.

4. The Magnitude of Service System Differentiation. In discussing service system differentiation and the specialization of individual facilities, it is important to distinguish specialization in psychiatric disorders (all units and all psychiatric hospitals specialize in psychiatric disorders) from specialization in particular kinds of psychiatric care. A measure of the greater differentiation of the mental health service system compared to the medical-surgical system is the difference in transfer rates within the system. Transfers between facilities within a system indicate that different facilities are carrying out different functions. More than twice as many psychiatric patients are discharged to another inpatient facility in the mental health system as in the general health care system: 27% v. 11%*. This pattern of transfers shows that different facilities are fulfilling different roles; section C-4 shows that there are also significant differences between types of facilities in the degree to which they make such transfers. [footnote: in the general health system the figure is the number of patients "discharged" to another inpatient setting while the 25% for mental health is the number of patients "referred" to another inpatient setting on discharge. It is reasonable to compare the two figures unless a large

number of psychiatric patients are simply discharged to the street with a recommendation that they get themselves to another facility for admission.] Other measures of the degree of differentiation, such as acceptance of committed patients, differences in length of stay, and differences in diagnosis will be reviewed below.

The organization of the mental health system both causes and results from adaptation to changing needs, opportunity, and circumstances. The elements of the system are connected by transfers and selective admission policies, practices known as "dumping" and "skimming" respectively. Some of these accommodations come in response to practice differences and inefficiencies as well, but attributing differences is difficult and dangerous without controlling for clinical, social, and legal needs of patients, families and their communities.

Setting national or regional prospective payment rates for psychiatric care is significantly more complicated because of this highly differentiated structure. This is so because apparently similar patients in different facilities are likely to have arrived in the different facilities for reasons which are not easily measured in clinical abstracts but which profoundly affect the likely cost of their treatment. The situation is further complicated because the relationship among parts of the system is continually changing and the rates of change, which are not uniform across regions, result in further and complicating state-to-state differences. The next section focuses on these processes of change.

B. <u>THE CHANGING RELATIONSHIP BETWEEN PARTS OF THE SYSTEM</u>. The system of care has been in considerable change since World War II in response to changes in public attitudes, treatment ideologies and techniques, legal/care rights, and health care financing. Readjustments have been

made to meet changing demand.

1. Site of Hospitalization. Change in the mental health system is most concretely illustrated by a shift in the settings where mental health treatment has been provided. During the 1950s, the population of state and county hospitals began to decline and psychiatric units in general hospitals began to develop. The process of movement out of the state and county hospitals (deinstitutionalization) accelerated sharply in the early 1960s (Figure 1), following the 1961 report of the Joint Commission on Mental Illness and Health and the passage of the Community Mental Health Services Act. This coincided with the development of the Medicare program. There are a number of indications that deinstitutionalization has not resulted in true community treatment and that chronic patients either remain in state inpatient facilities or have been shifted to nursing homes, prisons and other government-supported settings. Nevertheless, the movement did promote massive development of ambulatory community mental health programs and general hospital units. Private clinics and practitioners have increased in number as well. Accompanying this growth in community treatment settings has been a tremendous growth in the use of outpatient treatment. The majority of these expanded services provide care for a population that did not receive services prior to 1960.

In addition to the growth of community settings, there has been significant change in the settings providing much of the hospital-based treatment. An increased number of inpatients are served by private psychiatric hospitals, psychiatric units within general medical hospitals and Veterans Administration inpatient facilities (Tables 2 and 3).

As Figure 1 shows, episodes in state mental hospitals have declined

dramatically but are still substantial; general hospital psychiatric unit episodes exceeded those in state mental hospitals in 1977 and are still growing; and private mental hospital episodes have grown since the early 70s.

In addition to 666,000 discharges from general hospital psychiatric units, around a million discharges with a primary psychiatric diagnosis occurred from "scatter beds" of general hospitals in 1980. Discharges with a principal diagnosis of mental disorder from non-Federal short-stay general hospitals (from both psychiatric units and "scatter beds") increased 13 percent between 1975 and 1980, with more growth occurring in the number of discharges from separate psychiatric units than in the number of discharges from "scatter beds."

Figure 1 shows the trends in number of admissions to different groups of facilities over the past 30 years. Scatter beds are not shown and definite data is not available, but the total number of alcohol, drug, and mental health admissions to scatter beds is probably almost equal to the total number of admissions to psychiatric hospitals and units--about a million (Kiesler 1983).

2. Length of Stay in Different Settings. Figure 2 shows relative lengths of stay and trends in length of stay. Note that non-Federal general hospitals in this figure includes scatter beds as well as units. Figure 3 shows the trend in dollar expenditures for the three groups.

Table 2 shows the shifts in total beds in the different groups. Here the underlying trends of deinstitutionalization of state and county patients are dramatic. The number of total general hospital unit beds has increased from 36,689 to 55,536 between 1970 and 1982 while the number of state and county hospital beds decreased from 524,878 to 247,312. But

while total discharges from the private and general beds increased from 638,003 to 833,454, the number of discharges from state and county beds scarcely changed. This latter reflects a dramatic shortening of length of stay in the state and county hospitals with a consequent rise in discharges per bed.

The result of these changes is a larger range of mental health treatment options. Further development is needed in the coordination among these services, and this may well be the form that change in the mental health care system takes over the next decade. It should be recognized, however, the central role that reimbursement plays in determining the type and amount of care provided patients.

C. DIFFERENCES IN PATIENT CHARACTERISTICS BETWEEN HOSPITAL TYPES. Unfortunately, there ARE no data allowing comparison of all five classes of facilities described in part A. HCFA data on the excluded facilities was not available for analysis at the time research for this report was done and does not distinguish non-excluded units from scatter beds. NIMH survey research data on psychiatric hospitalization does not include scatter beds and does not distinguish excluded from non-excluded units. Sample surveys such as the National Hospital Discharge Survey do not distinguish discharges from unit and non-unit beds and do not include free-standing hospitals with an average length of stay greater than 28 days. Large data sets such as those compiled by major abstracting services do not indicate which patients are treated in units.

1. Patient Characteristics in Different Hospital Groups. Despite these difficulties with data, the analysis which follows clearly portrays the five categories of hospitals as comprising a continuum of increasing length of stay, increasing frequency of psychotic disorders, increasing

frequency of civil and criminal commitment, and increasing frequency of permanent disability.

Table 1 shows differences in patient populations across the three groups. Again, scatter beds are not represented and excluded units are not distinguished from non-excluded units. The picture is clearly of state and county hospitals as hospitals of last resort, private hospitals serving almost exclusively a population which can pay, and units serving a population somewhere between. It is interesting that Medicare beneficiaries appear to be somewhat more concentrated in private and general hospitals, as opposed to state and county hospitals, but the appearance may be deceiving because of Medicare's 190-day lifetime limit on coverage of care in psychiatric hospitals. This limit means that beneficiaries who are otherwise Medicare eligible will not be identified as Medicare eligible by a state or county hospital. It also means that Medicare beneficiaries who have exhausted the 190 days are likely to not to appear in private hospitals which require ability to pay. The disparity between the percentage of patients over 65 and the percentage for whom Medicare is expected to pay is attributable to two factors:

--30-40% of Medicare psychiatric hospitalizations are attributable to the disabled, who become eligible for Medicare 2 years after they become eligible for Social Security Disability Insurance. Presumably, the overwhelming majority of these disabled individuals are disabled by chronic mental illness, but this cannot be proven from available data.

--An unknown portion of those over 65 may have exhausted their Medicare psychiatric hospital benefit and be defined as non-Medicare.

Tables 4 and 5 show this same picture in a different way with an

extremely puzzling picture. Indeed, non-Medicare admissions among the over-65 group are concentrated in state and county facilities, and private mental hospitals have very few patients over 65 who are non-Medicare. But the number of non-Medicare admission to units who are over 65 is puzzling.

2. Differences in Length of Stay. In 1980-81 the median length of stay in general hospitals, private hospitals and state/county hospitals in 1980-81 was 12.0, 19.4 and 27.1 days respectively (Taube, Lee et al., 1984). Table 6 shows the difference in length of stay between those over and under 65 across classes of hospitals. Several features of this data are interesting.

--the downward trend in length of stay in state and county hospitals, which is so dramatic for the overall population, does not occur for those over 65.

--while lengths of stay overall are about twice as long in state and county hospitals compared to general hospitals, they are almost 4 times as long for those over 65.

--differences between psychiatric hospitals and general hospitals are much smaller for those over 65 than for those under 65.

Taube et al (1984) also found that differences in length of stay among Medicare, Medicaid and privately insured discharged patients were slight.

Data in Table 6 and Taube et al comes from sample surveys of hospitals conducted by NIMH. Medicare data shows that 17.5 per cent of Medicare psychiatric discharges were from non-short-term hospitals, which is consistent with the NIMH surveys (Morrison et al 1985).

There are large length-of-stay differences between general hospitals with psychiatric units and those without psychiatric units (Wallen, 1984). In 1982, the mean length of stay for Medicare patients in unit

hospitals was 15.9 days, 45 percent higher than the average length of stay of 11.0 days in non-unit hospitals. (Taube et al 1985)

Table 8 shows the distribution of diagnoses (classified by DRG) and the corresponding lengths of stay for all alcohol, drug, and mental (ADM) discharges from short-term general hospitals with and without psychiatric units. Mental disorder diagnoses (MDC 19) account for three-quarters of ADM discharges from hospitals with units, while these diagnoses account for only half of discharges from hospitals without units. The largest category for unit hospitals was DRG 430 (psychoses) with 38 percent of all ADM discharges; for non-unit hospitals, DRG 438 (alcohol and substance induced organic mental syndromes) with 28 percent of ADM discharges (Taube et al 1985)(Table 8)..

An analysis of Medicare claims from 4 states showed that while DRG 430 accounted for the largest proportion of unit hospital discharges; discharges for DRG 429 (organic disturbances and mental retardation) was the largest category for non-unit hospitals. (Freiman et al., 1985).

Table 8 also shows that unit hospitals have much longer lengths of stay than non-unit hospitals for all mental disorder DRGs except DRG 432 (other diagnoses of mental disorders). Part II of this appendix discusses the available evidence as to whether these differences reflect differences in patient needs or differing treatment philosophies and practice patterns.

A five-state study showed that state hospital discharges have a different case mix (measured by DRGs) from Medicare discharges in general. For example, less than 30 percent of Medicare discharges are in DRG 430 (psychosis) compared to 52.9 percent of state hospital discharges and 73.6 percent of the resident population. In this study, the average

lengths of stay for short term state hospital patients were also substantially longer, e.g., 40.2 days for DRG 430 (psychoses) compared to 16.4 days for Medicare discharges in general. Over one-half of all state hospital discharges were for involuntarily committed patients and almost one-third of patients are transfers from general hospitals (NASMHPD 1985).

3. Differences in Diagnostic Patterns Between Medicare and Other Patients. Table 7 shows the pattern of diagnoses for Medicare and other beneficiaries. Here the importance of organic disorders in the elderly is expected; so is the schizophrenia among the Medicare beneficiaries, which is presumably concentrated in the disabled since it is less present in the elderly.

Publication, in 1980, of the third edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM-III) by the American Psychiatric Association was an important development in efforts to systematize the diagnostic system. The classification system is multiaxial and represents an effort to describe comprehensively mental health disorders and problems. There are five DSM-III axes: Three axes (Clinical syndromes, Personality disorders, and Physical disorders) form the basic diagnosis; this information can be supplemented by two additional axes (Severity of psychosocial stressors, Highest level of adaptive functioning). The multidimensional nature of DSM-III is important in that it indicates the complexity of mental health disorders and problems and appears to have great potential for the measurement of "severity". Unfortunately, axes IV and V, which might give valuable insights into the reasonableness of differences between components of the psychiatric inpatient system, are not systematically reported in any data system.

4. Differences in Treatments. Treatment of mental disorders has undergone profound change since World War II, in part the result of alterations in the health care financing system and public attitudes toward the mentally ill, but also as a result of changes in treatment ideology and techniques. This period has witnessed the development of a diverse set of psychotherapies. Psychotherapy has evolved, from almost exclusive reliance on psychodynamic models, to encompass a diverse set of techniques that have theoretical bases in different theories about human behavior. Current treatments include those based on psychoanalytic ideas, as well as treatments based on learning theory behavioral treatments, and phenomenological explanations of behavior (Office of Technology Assessment, 1981; Banta and Saxe, 1983). A particularly dramatic feature of treatment is whether patients are treated voluntarily or involuntarily--table 9 shows these differences across hospitals and compares Medicare beneficiaries to all patients.

A second perspective is the places to which patients are discharged. Of the total Medicare discharges from general hospital psychiatric units, 3.6 percent are referred to a state mental hospital, 17.9 percent to a nursing home, and 7.1 percent to other inpatient settings. By contrast, only 9% of general hospital discharges for patients over 65 are to long-term care and only 2% are to other hospitals (NCHS). The contrast in such referrals across hospital types also suggests the degree to which state and county hospitals do not have the ability to refer to another facility those patients who do not recover.

5. Differences in Costs Between Types of Facility. Table 10 shows an estimate of the raw cost differences per admission between groups of hospitals. These numbers must be treated with great caution because they

do not reflect length of stay, case mix, input costs, teaching activities, or urban/rural location. Nevertheless, they are the only national figures available.

D. VARIATIONS IN DELIVERY SYSTEMS ACROSS STATES. Many of the national changes described in part B obscure state-to-state and regional variation in deinstitutionalization. While variations in admission rates and DRG-measured case mix would be taken into account by a system like PPS, variations in cost and length of stay might not be accounted for and could make design of an equitable system much more difficult. For example, in states which have expanded nursing home capacity, the long-term resident population of state hospitals has declined; in states which expanded general hospital psychiatric units, especially in public hospitals, acute admissions declined in state hospitals (Morrisey, 1982). Recent evidence (Frank and Lave 1985a) indicates that Medicaid caps on inpatient care in general hospitals in some states resulted in increased transfers to state hospitals. In designing regional or national per-discharge payment rates, the strong state-to-state variation in the organization of the mental health services system poses special problems. Table 12 shows the extent of state-to-state variation in hospital beds.

Both the distribution of Medicare ADM discharges and length-of-stay vary substantially from state to state. A study which compared four selected states with national averages found that the proportion of discharges with DRG 430 (psychoses) varied sharply. Some states had consistently higher lengths of stay across all DRGs than the national average, while other states had consistently lower lengths of stay across all DRGs. The variance around the length of stay by DRG was greater across states than within states, providing evidence for substantial state

or regional variation in lengths of stay. The percentage of Medicare claims from the under 65 population also varies widely across states, implying a difference in the percentage of chronically mentally ill across states. (Frieman et al. 1985; Morrison et al 1985).

Another kind of evidence for state-to-state variation is Taube and Goldman's (1985) study of mental hospitalization costs. Examining state hospitals they were able to account for 26% of the variance using patient and hospital characteristics; when they included a variable to represent the state in which hospitalization occurred, explained variance rose to 35%. In interesting contrast, adding a state variable added little to explanation of costs in general hospitals.

The resources available for mental health care vary between states and may partly explain why different state patterns appear. The relative availability of state facilities, whether state facilities are Medicare certified, state policy regarding voluntary commitment, waiting time to gain nursing home entry, state attitude regarding the enrollment of the chronically mentally ill under SSI and state Medicaid policy pertaining to psychiatric care have been hypothesized as reasons why different state patterns appear with respect to Medicare ADM discharges (Morrison et al. 1985, NASMHPD 1985).

The easy solution is to ignore such variation. Medicare does not adjust its per-discharge rates according to the number of nursing home beds in a state even though availability of such beds may influence length of stay and costs. But the situation is considerably more complicated because Medicare provides differential benefits across settings and because of idiosyncracies of the cost accounting system.

In state and county facilities, acute, chronic, and custodial patients

are grouped together in calculating Medicare's per diem payment. Since costs are lower for chronic and custodial patients, this would mean that Medicare would pay too much for chronic patients and too little for acute patients. But Medicare does not pay either for chronic hospitalization exceeding 190 days or for any form of custodial hospitalization; those cost are paid by local government or by Medicaid. Thus, existence of extra state hospital beds actually subsidizes Medicare in two ways--first by providing care for Medicare beneficiaries for whom Medicare no longer pays after they have exhausted their 190-day limit and then by reducing the per diem cost for those patients who have not exhausted their Medicare benefit.

For these reasons, it is likely that a system which pressed general and private hospitals to transfer patients to state and county facilities, (as PPS presses general hospitals to transfer patients to skilled nursing facilities), would actually place substantial financial burdens on local government rather than simply moving patients to a more efficient location of service. Although such incentives cannot be eliminated by setting payment rates which reflect the structure of the state system, it is clear that rates which did not reflect state characteristics could intensify the incentives significantly.

E. EFFECTS OF INSURANCE AND PAYMENT POLICIES ON THE SYSTEM. Section B described the way in which the mental health services system is evolving and sections C and D described the components in some detail. This section seeks to describe the ways in which evolving public policy and the structure of insurance coverage interact to shape the future structure of the mental health system. Although inferences about the behavior of so highly differentiated a system must be tentative, they are important in

understanding the way in which changes in Medicare payments might affect beneficiaries and hospitals.

As in medicine, reimbursement policies have had a major impact on how and where care is provided. Growth of commercial insurance coverage in the 1960s increased general hospital inpatient care and office-based practice of psychiatrists and psychologists (Figure 1). Parallel Federal-state direct funding of community-based inpatient and outpatient care through the Community Mental Health Centers increased outpatient episodes fourfold between 1965 - 1980. Medicaid enabled a major shift of costs and patients (primarily elderly) from the state mental hospitals to nursing homes. This combination of events decreased financial barriers to securing care and ameliorated the impact of economic factors on care received. A major difference, however, is that in mental health, Medicare did not replace "charity care" to the extent it did in health. As discussed above, the Medicare benefit for mental health was limited in a number of ways compared to medical surgical benefits. Commercial insurors also tend to limit the mental health benefit; although they generally cover acute general hospital care, and were slightly more generous in outpatient benefits (the modal policy allows $1,000 of benefits annually compared to Medicare's $250), commercial insurors generally do not cover psychiatric hospitals (Hay-Huggins).

Insurance coverage for mental illness is thus less extensive both in the range of providers covered and in the amount of coverage for mental health when compared to medical-surgical care. In addition, many policies simply exclude mental health services. Of the privately insured U.S. population under 65, 82.4 percent has inpatient mental illness insurance coverage and 71.4 percent outpatient, compared to 98.0 percent and 83.3

percent respectively in health (Horgan and Farley, 1981). None of this captures precisely the degree to which the general population is uninsured for catastrophic mental illness compared to catastrophic medical-surgical illness.

The degree to which state hospitals serve as the "floor" of the mental health services system is thus partly a result of the structure and extent of insurance coverage. The closest analogy in medical-surgical care is the public general hospital. But public general hospitals account for only 22 percent of all general hospital beds, for example, while state mental hospitals account for 57 percent of all psychiatric beds. In community hospitals, uncompensated care in 1982 was estimated to be 5 percent of charges (Feder, Hadley, and Mullner, 1984). Table 5 indicates that for 17 percent of admissions to psychiatric inpatient settings, no payment was expected. This ranged from 47 percent in state mental hospitals to 1.0 percent in private mental hospitals. Due to the reduced capacity of the state mental hospital systems over the last 20 years, (a 70 percent reduction in beds) and the pressure on state government funds, (State hospital expenditures in constant dollars decreased from $1.81 billion to $1.76 billion between 1969 - 1981), the capacity of these hospitals to provide acute and long-term care to the public patient is greatly diminished even though the quality of this limited care has greatly increased (due to better staffing, new treatment programs) (Figure 3 and Table 6).

Private mental hospitals have experienced major growth since 1970 (Figure 1) and represent eight percent of the psychiatric beds available. They play a major role parallel to the nonprofit/proprietary general hospital psychiatric unit but serve a mixed acute and long-term patient

population. They appear to be less able than other hospitals to provide significant amounts of uncompensated care.

General hospitals have experienced increased caseloads of chronic public patients in their emergency rooms and inpatient psychiatric units (Bachrach 1985). Private general hospitals, like private psychiatric hospitals, have been less willing and financially able to absorb these chronic patients who need intermittent episodes of acute inpatient care, and the burden has fallen largely on the public and nonprofit general hospitals. The severity of this problem varies with the level of state funding of community care and the restrictiveness of the state mental hospital admission policies.

Prospective payment of psychiatric care is thus being considered at a time when the mental health system is highly differentiated, delicately balanced, and volatile. What seem to be minor changes in the way care is reimbursed in the health system can be expected to have major repercussions in the mental health system. These repercussions will be amplified by the well-established transfer mechanisms, which would facilitate skimming and dumping, and by the fact that a system in transition is likely to respond with special rapidity to reimbursement incentives. Cost shifting back to the state financed mental hospitals is the obvious choice of general hospitals. Evidence already exists that Medicaid limits on acute care in general hospitals have a direct effect on the number of referrals to state mental hospitals (Lave and Frank).

Because Medicare pays for a smaller proportion of care in mental health, decreased access to care may be a greater problem for Medicare beneficiaries if an unfavorable reimbursement policy causes hospitals to not accept Medicare patients. Tables 4 and 5 show Medicare's market share

by setting and by under 65/over 65 age groups. General hospitals have the flexibility to decide not to establish or maintain specialized psychiatric units or to systematically discourage Medicare admissions. Private mental hospitals can also focus on non-Medicare groups. State mental hospitals, which cannot exert the same degree of "boundary control," may become the unwilling recipients of these patients.

F. OVERVIEW OF RELATION OF PAYMENT SYSTEM TO THE SERVICE SYSTEM. The structure of the mental health services system described in this section interacts with the findings on case mix systems described in the next section. In this section we have qualified cost comparisons between parts of the system by pointing out that case mix corrections have not been made. Part II of this appendix raises serious doubts that such corrections can be made within the state of the art. Thus it will be important that any per case payment system carefully reflect the differentiation of the services system, which ultimately determines the degree to which different facilities receive or keep patients with different treatment needs. Material presented in this appendix does not show the exact procedures by which this can be done, but it does suggest the importance of such and approach and the variables which would need to be considered. Those approaches will be discussed in detail in Part III of this appendix.

TABLE 1 Personal Characteristics and Regional Distribution of Mental Patients by Type of Hospital

Personal Characteristics	General Hospitals (%) (N = 4,611)	Private Hospitals (%) (N = 5,437)	State/County Hospitals (%) (N = 2,570)
Race			
Native American	0.74	0.31	1.48
Asian American	0.84	0.55	0.56
Black American	14.82	12.75	23.80
White American	79.15	82.34	69.80
Hispanic origin	4.66	4.06	4.79
Marital status			
Married	34.61	40.56	20.24
Not married	65.39	59.44	79.76
Age group (years)			
<20	11.15	16.04	9.32
20–24	13.22	11.62	18.33
25–29	14.20	11.91	16.77
30–34	14.22	11.72	13.15
35–39	10.21	8.95	9.55
40–49	13.20	13.96	14.35
50–64	15.03	15.59	14.17
≥65	8.75	10.20	4.36
Education (years)			
<12	35.96	37.49	55.32
12	37.65	36.74	29.60
>12	26.39	25.77	15.08
Veteran status			
Veteran	10.92	13.39	18.97
Nonveteran	89.08	86.61	81.03
Prior mental health service			
No prior care	16.01	20.77	13.44
Non-inpatient care	12.76	12.51	5.55
Some inpatient care	71.22	66.72	81.01
Legal status			
Involuntary	15.73	11.78	59.83
Voluntary	84.27	88.22	40.17
Referral status			
Non-inpatient to non-inpatient	83.27	80.43	79.72
Non-inpatient to inpatient	14.76	13.63	9.62
Inpatient to non-inpatient	1.36	4.29	8.77
Inpatient to inpatient	0.61	1.66	1.89
Source of payment			
No fee payment	3.21	0.96	44.85
Personal resources	7.14	4.12	15.70
Medicare	14.89	15.99	10.18
Other health insurance	43.83	60.80	9.99
Medicaid	23.19	7.78	8.45
Social service funds	0.55	1.21	4.29
VA	0.65	0.24	0.72
CHAMPUS	1.12	3.68	0.65
Other	5.62	5.21	5.17

Table 4. Number of inpatient beds, percent distribution, and rate per 100,000 civilian population,[1] by type of mental health organization: United States, selected years 1970-82 [2]

Type of organization	1970	1976	1980	1982
		Number of inpatient beds		
All organizations	524,878	338,963	274,713	247,312
State and county mental hospitals	413,066	222,202	156,482	140,140
Private psychiatric hospitals	14,295	16,091	17,157	19,011
Non-Federal general hospital psychiatric services	22,394	28,706	29,384	36,525
VA psychiatric services [3]	50,688	35,913	33,796	24,646
Federally funded community mental health centers	8,108	17,029	16,264	--
Residential treatment centers for emotionally disturbed children	15,129	18,029	20,197	18,475
All other organizations [4]	1,198	993	1,433	8,515
		Percent distribution of inpatient beds		
All organizations	100.0%	100.0%	100.0%	100.0%
State and county mental hospitals	78.7	65.6	57.0	56.6
Private psychiatric hospitals	2.7	4.7	6.2	7.7
Non-Federal general hospital psychiatric services	4.3	8.5	10.7	14.8
VA psychiatric services [3]	9.7	10.6	12.3	10.0
Federally funded community mental health centers	1.5	5.0	5.5	--
Residential treatment centers for emotionally disturbed children	2.9	5.3	7.4	7.5
All other organizations [4]	0.2	0.3	0.5	3.4
		Inpatient beds per 100,000 civilian population		
All organizations	263.6	160.3	124.3	108.1
State and county mental hospitals	207.4	105.1	70.2	61.2
Private psychiatric hospitals	7.2	7.6	7.7	8.3
Non-Federal general hospital psychiatric services	11.2	13.6	13.7	16.0
VA psychiatric services [3]	25.5	17.0	15.7	10.8
Federally funded community mental health centers	4.1	8.0	7.3	--
Residential treatment centers for emotionally disturbed children	7.6	8.5	9.1	8.1
All other organizations [4]	0.6	0.5	0.6	3.7

Source: Published and unpublished data from the Survey and Reports Branch, Division of Biometry and Epidemiology, National Institute of Mental Health.

[1] The populations used in the calculations of these rates is the January 1 civilian population of the United States for each year.

[2] For the most recent years shown in these tables (1981-82), some organizations were reclassified as a result of changes in reporting procedures, and data for some organization/program types were not available. For the 1979-80 year, comparable data were not available for certain organization types and data for either an earlier or a later period were substituted. These factors influence the comparability of 1979-80 and 1981-82 data and those from earlier years. For details, see appendix A.

[3] Includes VA neuropsychiatric hospitals and VA general hospitals with separate psychiatric services.

[4] Includes other multiservice mental health organizations with inpatient services that are not elsewhere classified.

Table 5. Number of inpatient episodes, percent distribution, and rate per 100,000 civilian population,[1] by type of mental health organization: United States, selected years 1969-81 [2]

Type of organization	1969	1975	1979	1981
	Number of inpatient episodes			
All organizations	1,710,372	1,817,108	1,779,587	1,720,392
State and county mental hospitals	767,115	598,993	526,690	499,169
Private psychiatric hospitals	102,510	137,025	150,535	176,513
Non-Federal general hospital psychiatric services	535,493	565,696	571,725	676,941
VA psychiatric services [3]	186,913	214,264	217,507	205,580
Federally funded community mental health centers	65,000	246,891	254,288	--
Residential treatment centers for emotionally disturbed children	21,340	28,302	33,729	34,426
All other organizations [4]	32,001	25,937	25,113	127,763
	Percent distribution of inpatient episodes			
All organizations	100.0%	100.0%	100.0%	100.0%
State and county mental hospitals	44.9	33.0	29.6	29.0
Private psychiatric hospitals	6.0	7.5	8.5	10.3
Non-Federal general hospital psychiatric services	31.3	31.1	32.3	39.4
VA psychiatric services [3]	10.9	11.8	12.2	11.9
Federally funded community mental health centers	3.8	13.6	14.3	--
Residential treatment centers for emotionally disturbed children	1.2	1.6	1.9	2.0
All other organizations [4]	1.9	1.4	1.4	7.4
	Inpatient episodes per 100,000 civilian population			
All organizations	859.1	859.6	812.1	755.7
State and county mental hospitals	385.3	283.3	236.4	219.3
Private psychiatric hospitals	51.5	64.8	67.6	77.5
Non-Federal general hospital psychiatric services	269.0	267.6	266.3	297.3
VA psychiatric services [3]	93.9	101.4	101.3	90.3
Federally funded community mental health centers	32.6	116.8	114.1	--
Residential treatment centers for emotionally disturbed children	10.7	13.4	15.1	15.1
All other organizations [4]	16.1	12.3	11.3	56.1

Sources: Published and unpublished data from the Survey and Reports Branch, Division of Biometry and Epidemiology, National Institute of Mental Health.

[1] The populations used in the calculation of these rates is the July 1 civilian population of the United States for each year as provided by the U.S. Bureau of the Census and published in Series P-25 publications.

[2] For the most recent years shown in these tables (1981-82), some organizations were reclassified as a result of changes in reporting procedures, and data for some organization/program types were not available. For the 1979-80 year, comparable data were not available for certain organization types and data for either an earlier or a later period were substituted. These factors influence the comparability of 1979-80 and 1981-82 data and those from earlier years. For details, see appendix A.

[3] Includes VA neuropsychiatric hospitals and VA general hospitals with separate psychiatric services.

[4] Includes other multiservice mental health organizations with inpatient services that are not elsewhere classified.

TABLE 4
Distribution of Admissions/Discharges by Medicare Status and Age by Major Psychiatric Setting, 1980-1981

Medicare	General Hosps Discharges			Public Hosps Admissions			Private Hosps Admissions		
	<65	65+	Total	<65	65+	Total	<65	65+	Total
Yes	54,379	46,297	100,676	27,599	7,825	35,424	9,991	12,053	22,044
No	552,667	12,957	565,624	321,394	12,231	333,625	117,302	1,863	119,155
Ttl	607,046	59,254	666,300	348,993	20,056	369,049	127,293	13,916	141,209

Table 5. Percent distribution of admissions, by expected principal source of payment,[1] age, and type of inpatient psychiatric service: United States, 1980

Expected principal source of payment and age	Inpatient psychiatric services					
	State and county mental hospitals	Private psychiatric hospitals	Non-Federal general hospitals			
			Total	Public	Nonpublic	Multiservice
Total all ages	369,049	141,209	666,300	127,372	436,589	102,339
No payment	46.5%	0.9%	3.6%	7.0%	1.9%	6.6%
Personal resources	15.2	4.1	6.8	8.5	5.9	8.4
Medicare	9.6	15.6	15.1	14.4	15.2	15.4
Insurance	9.5	62.5	42.9	30.9	48.9	32.4
Medicaid	8.3	6.9	23.1	24.7	22.0	26.0
Other	10.9	10.0	8.4	14.4	6.0	11.2
Under 65	348,993	127,293	607,046	118,945	394,775	93,326
No payment	48.2%	1.0%	4.0%	7.5%	2.1%	7.2%
Personal resources	15.2	4.3	7.3	9.1	6.4	9.0
Medicare	7.9	7.8	9.0	10.2	8.3	10.3
Insurance	9.9	68.4	46.0	32.3	52.9	34.1
Medicaid	7.5	7.4	24.7	26.1	23.7	27.3
Other	11.3	11.1	9.1	14.9	6.6	12.1
65 and over	20,056	13,916	59,254	8,427	41,814	9,013
No payment	17.1%	—	—	—	—	—
Personal resources	15.3	1.7	*	—	*	*
Medicare	39.0	86.6	78.1	75.1	80.8	68.7
Insurance	2.8	8.8	11.6	11.5	11.0	14.6
Medicaid	21.2	2.1	7.0	5.7	6.3	11.9
Other	4.6	0.8	1.9	*	*	2.5

[1] Expected principal source of payment was not collected in 1980 survey of VA medical centers.

* Five or fewer sample cases; estimate not shown because it does not meet standards of reliability.

Note: Percentages may not add to 100% due to rounding.

Table 6. Median days of stay for admissions (excluding deaths) to selected inpatient psychiatric services, by age and selected primary diagnoses: United States, selected years 1970-80

Age and selected primary diagnoses	State and county mental hospitals[3]			Private psychiatric hospitals			Non-Federal general hospitals[4]		
	1970[1]	1975[2]	1980	1970[1]	1975[2]	1980	1970[1]	1975[2]	1980
Total	41	25	23	20	20	19	10	12	12
Under 18	74	66	54	36	36	36	9	17	14
18-24	34	27	17	24	22	16	8	10	10
25-44	37	23	20	18	17	17	10	11	11
45-64	42	21	29	17	18	18	11	14	14
65 and over	61	58	61	24	21	20	17	17	17
Alcohol-related	33	11	12	9	11	20	5	6	6
Drug-related	17	12	12	17	13	19	5	6	10
Organic disorders	78	63	71	26	18	17	12	14	14
Affective disorders	32	27	22	20	20	20	13	14	14
Schizophrenia	38	41	42	28	23	18	11	13	15

[1] Data for non-Federal general hospitals are for 1971.

[2] Reported median days of stay may differ from previously published medians for this year, since grouped days were used to calculate medians in 1975 and single days were used in 1980.

[3] The 1970 medians for State and county mental hospitals are based only on weighted reported data, missing values have been excluded. Thus, medians presented in this table may differ from those published previously.

[4] Since multiservice non-Federal general hospitals were not included in the 1971 and 1975 surveys, they have been excluded from the 1980 figures presented in this table.

TABLE 7

PRINCIPAL DIAGNOSIS FOR MEDICARE AND NON-MEDICARE PATIENTS

BY TYPE OF HOSPITAL

	Gen Hosp Psych Units Admissions		State and County Psych Hosps Discharges		Private Psych Hosps Admissions	
	Mcare	All	Mcare	All	Mcare	All
Mental Retardation	569	2642	714	6903	*	315
Alcohol Related	6476	50843	4879	80161	1999	13115
Drug Related	1279	19579	*	17557	238	4122
Organic Disorders	11311	21818	3868	15378	2924	4962
Affective Disorders	31504	207310	6521	49633	9594	60527
Schizophrenia	29611	167973	16429	140136	5290	29990
Other Psychoses	5028	30207	473	6590	639	3495
Acute Sit Disturb	2598	23477	*	1811	447	4777
Personality Disorders	535	30697	522	20875	327	6764
Pre-Adult Disorders	*	11461	*	4989	*	4977
Other Non-Psychotic	10069	90389	722	14588	395	6710
Social Conditions	*	1175	*	1847	*	91
No Mental Disorder	*	935	*	3417		121
Diagnosis Deferred	*	873	*	2439	*	616
Medical Conditions	1246	6971	*	2725	84	627
Total	100676	666300	35424	369049	22044	141209

* Insufficient cases to provide reliable estimate

Source: National Institute of Mental Health

TABLE 8

PERCENT DISTRIBUTION AND AVERAGE LENGTH OF STAY

FOR ADM DISCHARGES FROM GENERAL HOSPITALS

WITH AND WITHOUT PSYCHIATRIC UNITS

	Percent Distribution		Average Length of Stay	
	Unit	Non-Unit	Unit	Non-Unit
MDC 19				
424 O.R. Procs w/Princip DX Mental Illness	1.8	1.5	28.7	17.3
425 Acute Adj React & Disturbs of Psychosocial Function	5.5	10.4	18.0	4.58
426 Depressive Neuroses	16.0	12.9	11.9	7.1
427 Neuroses except Depress.	3.9	2.6	11.4	8.0
428 Disorders of Personality and Impulse Control	2.8	1.1	14.7	11.3
429 Organic Disturbs &	6.1	10.1	14.8	13.1
430 Psychoses	37.5	13.0	16.7	10.3
431 Childhood Mental Disorders	1.3	0.4	23.9	4.7
432 Other Diagnoses of Mental Disorders	0.4	0.6	9.7	11.3
MDC 20				
433 Substance Use and Substance Induced Ment Dis, Left AMA	3.2	5.4	5.5	4.5
434 Drug Dependence	2.5	2.8	12.7	16.1
435 Drug Use Except Dependence	1.1	1.0	14.7	14.1
436 Alcohol Dependence	3.4	7.9	15.1	13.9
437 Alcohol Use Except Depend.	1.5	2.8	4.8	3.4
438 Alcohol & Subs Induced Organic Mental Syndrome	12.9	27.3	10.6	12.1

Source: CPHA and AHA, 1982, Adapted from Taube et al (1985), Table 2 p. 657

TABLE 9

PERCENTAGE OF INVOLUNTARY ADMISSIONS BY HOSPITAL TYPE

	GENERAL HOSP UNITS	STATE & COUNTY HOSPS	PRIVATE HOSPITALS
ALL PATIENTS			
VOLUNTARY ADMS	84.2	41.6	87.4
INVOLUNTARY NON-CRIMINAL	15.1	51.1	12.5
INVOLUNTARY CRIMINAL	0.7	7.3	0.1
TOTAL	100.0	100.0	100.0
MEDICARE PATIENTS			
VOLUNTARY ADMS	84.3	36.5	86.0
INVOLUNTARY (CRIMINAL & NON-CRIMINAL)	15.7	63.5	14.0
TOTAL	100.0	100.0	100.0

Source: National Institute of Mental Health

TABLE 10

PERCENT OF PSYCHIATRIC PATIENTS REFERRED TO

OTHER HOSPITALS OR LONG TERM CARE AT DISCHARGE

BY MEDICARE STATUS AND HOSPITAL TYPE

	GENERAL HOSP UNITS	STATE & COUNTY HOSPS	PRIVATE HOSPITALS
MEDICARE PTS	26.9	10.8	26.9
ALL PTS	15.7	11.0	15.2

Source: National Institute of Mental Health

TABLE 11

TOTAL OPERATING EXPENDITURES PER ADMISSION

BY HOSPITAL TYPE

1981

	Gen Hosp Psych Units	State and County Psych Hosps	Private Psych Hosps
Total Operating Costs	$2,032,532,000	$4,492,606,000	$1,113,764,000
Total Admissions*	648,205	370,693	162,034
Operating Costs per Admission*	3,135.63	$12,119.48	$6,873.64

*Figures are discharges and costs per discharge for state and county hospitals.

Source: National Institute of Mental Health.

Note that these figure are not adjusted for differences in length of stay, case mix, labor costs, teaching status, or urban/rural location.

TABLE 12

INPATIENT PSYCHIATRIC BEDS PER 100,000 POPULATION
BY STATE AND HOSPITAL TYPE

1982

	All Beds	State & County Hospitals	Private Hospitals	General Hospital Units	Other Beds
U.S. TOTAL	108.1	61.2	8.3	16.0	22.6
Alabama	109.8	56.6	7.1	14.9	31.2
Alaska	57.5	46.6	--	8.1	3.0
Arizona	70.1	12.4	2.9	19.0	35.7
Arkansas	61.5	16.8	-	7.6	37.0
California	72.4	27.7	9.6	13.4	21.6
Colorado	87.6	33.9	11.6	7.5	34.6
Connecticut	158.8	78.0	25.7	19.7	35.3
Delaware	147.5	104.4	9.3	13.6	20.2
Dist. of Col.	438.5	337.1	32.4	35.0	34.0
Florida	90.3	51.4	11.2	12.4	15.4
Georgia	131.8	86.8	20.4	11.1	13.5
Hawaii	39.4	24.9	-	4.7	9.9
Idaho	40.3	27.2	-	0.8	12.3
Illinois	79.3	35.6	6.4	18.7	18.6
Indiana	94.6	57.6	1.3	18.1	17.6
Iowa	84.4	38.1	-	27.8	18.5
Kansas	129.3	56.6	11.2	25.8	35.8
Kentucky	67.5	24.6	12.9	11.7	18.2
Louisiana	79.5	52.3	11.3	7.8	8.0
Maine	136.3	59.5	-	12.0	64.8
Maryland	134.0	86.3	17.7	11.3	18.7
Massachusetts	137.2	51.3	15.2	14.9	55.7
Michigan	95.4	50.3	8.6	15.5	20.9
Minnesota	123.5	56.8	-	33.3	33.4
Mississippi	118.2	83.9	2.2	6.5	25.7
Missouri	100.4	49.9	3.4	28.2	18.9
Montana	74.4	44.2	-	13.6	16.6
Nebraska	76.9	47.0	5.4	11.3	13.2
Nevada	34.4	15.7	-	4.5	14.3
New Hampshire	95.3	68.2	10.9	3.4	12.8
New Jersey	106.7	72.4	6.8	12.0	15.6
New Mexico	45.2	15.9	6.9	4.2	18.2
New York	213.3	151.0	5.5	25.4	31.4
North Carolina	104.0	63.1	7.3	12.5	21.2
North Dakota	137.9	118.0	-	20.9	-
Ohio	95.9	51.6	5.6	19.3	19.5
Oklahoma	89.4	55.2	9.2	17.5	7.5
Oregon	76.0	43.5	2.4	11.9	18.1

(continued on next page with notes)

TABLE 12 (contd)

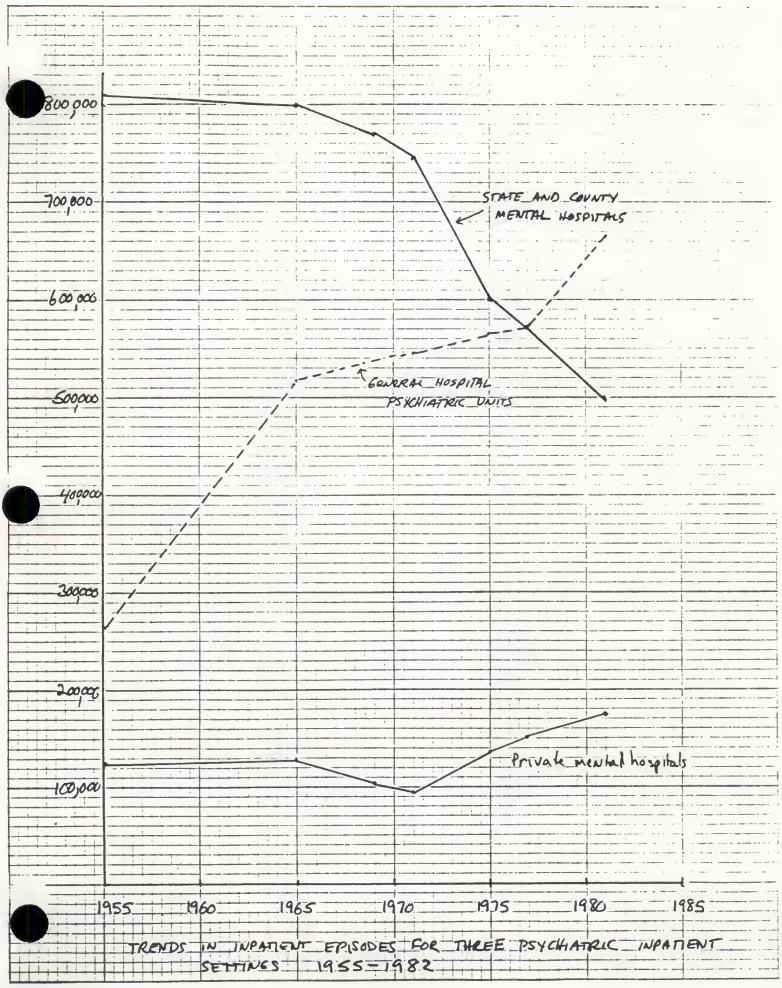
Pennsylvania	142.7	91.9	11.2	13.5	26.1
Rhode Island	124.0	73.4	17.3	20.1	13.2
South Carolina	131.9	113.7	2.2	10.5	5.6
South Dakota	140.7	69.7	-	12.4	58.6
Tennessee	90.2	56.0	8.6	12.0	13.6
Texas	90.8	45.3	7.2	17.8	20.5
Utah	60.6	21.0	-	12.5	27.1
Vermont	122.6	52.0	29.2	12.4	29.0
Virginia	150.6	95.6	21.6	14.2	19.2
Washington	57.3	28.8	3.9	9.3	15.2
West Virginia	111.4	84.0	5.0	15.8	6.5
Wisconsin	90.9	28.1	5.9	22.7	34.2
Wyoming	123.1	70.4	-	-	52.7

*Population is civilian population as of January 1982.

**Data as of January 1981

***Includes VA, residential treatment centers for the retarded, and other multiservice mental health facilities not elsewhere classified.

Source: National Institute of Mental Health



TRENDS IN INPATIENT EPISODES FOR THREE PSYCHIATRIC INPATIENT SETTINGS 1955-1982

Figure 2

Median days of stay for admissions to selected inpatient psychiatric services: United States, selected years 1970-1980

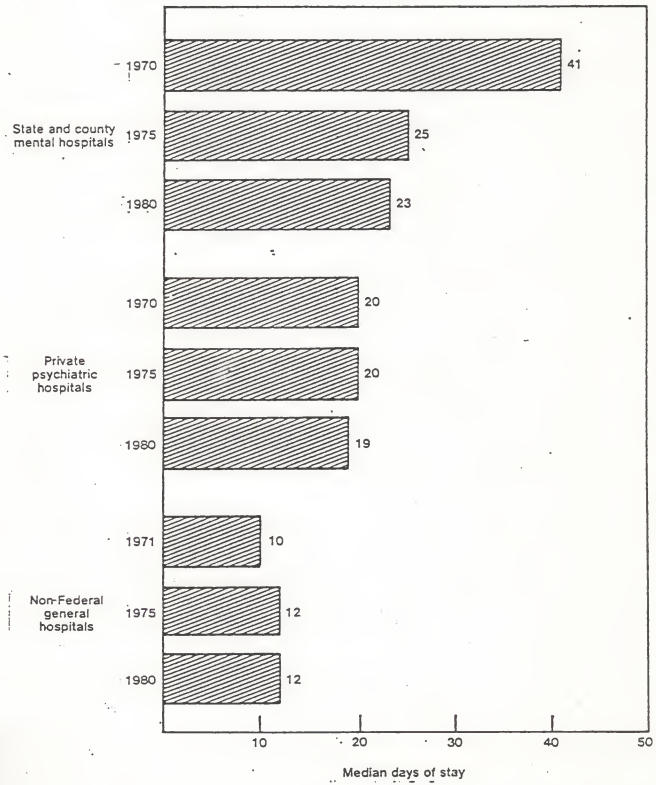
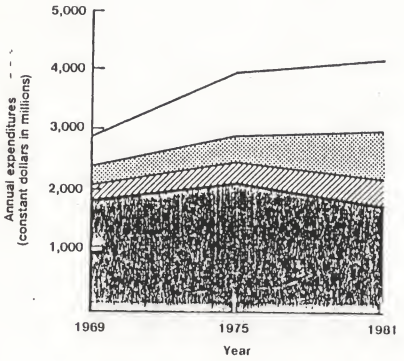
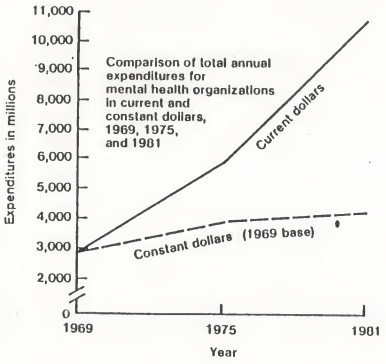


Figure 3

Estimated annual expenditures (constant dollars), selected mental health organizations (excluding VA medical centers): United States, 1969, 1975, and 1981





Type of organization	(In millions)		
	1969	1975	1981
Total (excluding VA medical centers)	$2,043	$3,944	$4,192
State and county mental hospitals	1,014	2,142	1,762
Private psychiatric hospitals	220	314	437
General hospital psychiatric services	290	418	797
All other (excluding VA medical centers)	511	1,070	1,196

PSYCHIATRY REPORT: PART II
RESEARCH ON CLASSIFICATION AND PAYMENTS SYSTEMS
FOR EXCLUDED PSYCHIATRIC FACILITIES

BACKGROUND. This part of the analysis of prospective payment for excluded psychiatric facilities focuses on research in two areas:

--ways to classify discharges for payment and

--ways to decide the amount to be paid from the classification of the discharge.

The research analyzed was largely initiated to determine whether and how psychiatric facilities could be brought under the Medicare Prospective Payment System, and substance abuse receives relatively limited attention. This part is divided into 4 sections. Section A describes the DRG classification system as it now exists and some basic observations on applying it to existing data. Section B describes research on the analytic power of the existing system and on a number of modifications which have been proposed. Section C describes research on the impact of using current DRGs and various alternatives to classify psychiatric discharges for payment if the current PPS payment system were used. Section D reviews alternative payment systems and their impact.

The reader will find repeated reference to the ability of classification systems to account for or explain variation in cost or length of stay. While this concept has a sophisticated statistical foundation, the reader should realize that explained variation measures only how well a classification system groups together hospital episodes which actually took the same length of time or actually had similar ADM caseload.

A. OVERVIEW OF THE ADM DRGs. The current HCFA DRGs classify hospital discharges into 23 major diagnostic categories (MDCs) according to principal diagnosis and then assigns the discharge into one of 468 DRGs on the basis of occurrence of certain procedures, specific principal diagnosis, presence of certain secondary diagnoses, age, and discharge status. Discharges from psychiatric facilities generally fall into MDC 19 (mental disorders), which contains DRGs 424-432, and MDC 20 (substance abuse disorders), which contains DRGs 433-438. Relative frequencies and lengths of stay for these DRGs are listed in Table 2.1. These DRGs are assigned almost wholly on the basis of diagnosis except for DRG 424 (mental disorder diagnosis with operating room procedure) and DRG 433 (substance abuse disorder diagnosis with discharge against medical advice); this contrasts with medical-surgical DRGs where DRG assignment depends heavily on procedures, age, and secondary diagnoses.

Table 2.1 shows that, in Medicare claims data for 1979 to 1981, 5 of the 15 ADM DRGs account for 90 percent of ADM discharges; DRGs 429 (organic disturbances and mental retardation) and 430 (psychoses) account for half of ADM discharges. DRGs 425 (acute adjustment reaction and disturbance of psychosocial function) and DRG 426 (depressive neuroses) account for most of the remaining mental disorder diagnoses. DRG 438 (alcohol and substance abuse induced organic mental syndrome) accounts for almost one-fifth of ADM discharges and comprises the bulk of the six substance abuse DRGs. (Morrison et al. 1985).

DRG 424 cases have a psychiatric diagnosis and an operating room procedure. Since there is almost no psychosurgery and electroconvulsive therapy is not considered an OR procedure, these cases are probably either coding errors or atypical admissions which would be better classified in

DRG 468--the DRG for all other cases where an operating room procedure is not related to the principal diagnosis. Except for DRG 424, the average lengths of stay vary little among psychiatric DRGs. DRG 430 (psychoses) has the longest length of stay with 16.4 days. The coefficients of variation (C.V.) for almost all of the ADM DRGs are around 1.0 (Table 2.1), which indicates substantial variation in length of stay among patients within the DRG. Thus, the ADM DRGs have two problems--the cases placed within each DRG are not strongly similar to one another and the differences between patients in different DRGs is not large compared to the variation among patients within the DRGs. In all the DRGs, the median length of stay is substantially less than the mean, indicating the high degree of skewness (that is, a large number of cases with lengths of stay very much longer than the average). The two DRGs (429 and 430) which account for one-half of the ADM caseload are also the most highly skewed (Morrison et al. 1985)

The final column of Table 2.1 shows the proportion of Medicare beneficiaries in each DRG who are eligible for Medicare because of disability rather than age. While just 8 percent of those in DRG 429 (organic disorders) are disabled, 25 to 60 percent of discharges in other DRGs are disabled beneficiaries (Macro et al., 1985).

B. PREDICTIVE POWER OF ADM DRGs AND ALTERNATIVE SYSTEMS. The Federal government and professional and hospital organizations have conducted a number of studies of the feasibility of extending PPS to now excluded facilities. Many of these studies examined DRGs, either alone or refined by the addition of other classification variables. Alternative classification schemes were also tested alone and as modifiers to the current DRGs.

1. DRGs and the Prediction of Resource Use. The studies must be compared carefully because of differences in the data bases used for analysis. Some studies are limited to the Medicare population (e.g., Freiman et al 1985, APA 1985), while others deal with a non-Medicare population (e.g., McGuire et al 1985, BCWP 1985). Many studies are limited to either a single institution (e.g., Essock-Vitale 1985) or a single type of institution (e.g., HCA 1985, NAPPH 1985). Some deal with different types of institutions but are localized with respect to region (e.g., Leff et al 1985, Horn 1985) while other studies rely on nationally representative data (e.g., APA 1985, Taube et al. 1985, Morrison et al 1985). Studies also use different trim points with respect to the determination of outliers and some data is untrimmed. Typically, length of stay is the measure of resource consumption although some studies also have cost data or other measures of resource use, such as nursing hours consumed, (e.g., Frieman et al 1985, McGuire et al 1985, Essock-Vitale 1985). However, despite these different data bases and methodological considerations, there is one consistent finding across all the studies. The ADM DRGs are poor predictors of resource consumption.

Table 2.2 summarizes the studies which specifically examined the amount of variance in resource use accounted for by the ADM DRGs. The variation in resource use explained by the ADM DRGs ranged from 2 to 15 percent with a definite clustering at the lower end of this range. Only one study found an explained variation greater than 8 percent. Given the differences in the data bases, the finding that DRGs are poor predictors of cost and length of stay is strikingly consistent.

2. Comparison of Psychiatric, Medical and Surgical DRGs. The studies summarized in Table 2.2 clearly show that the ADM DRGs account for very

little of resources used by patients with a psychiatric diagnosis; however, psychiatric DRGs are no worse than non-surgical DRGs in explaining resource consumption. Freiman et al. (1985) found that the ADM DRGs accounted for 5-10 percent of explained variation, whereas the medical DRGs did about the same with 4-9 percent explained variation. The surgical DRGs did substantially better with 31-39 percent explained variation.

In comparing average coefficients of variation for lengths of stay and costs, Frank and Lave (1985) also found that both the psychiatric and the medical DRGs were considerably more heterogenous than the surgical DRGs.

These findings imply that hospitals which treat a large proportion of surgical patients will have more predictable resource consumption than hospitals with a large psychiatric and/or medical case load. In other words, the unsystematic or random risk associated with treating both medical and psychiatric patients based on pre-PPS practice patterns is relatively high. Hospitals have a greater chance of losing or gaining on medical and psychiatric discharges than on surgical discharges.

3. Modifying the ADM DRGs. Many studies have identified variables which could be used in conjunction with the ADM DRGs to improve their predictive ability. Variables related to patient characteristics which showed some promise are discussed in the first part of this section. Modifying variables which are related to characteristics of the treating hospital are discussed in the second part of this section. Several of the studies used some of these variables in developing alternate classification systems. The performance of these alternative systems is the focus of the next section.

a. Patient Variables. Many studies found a significant nonlinear

relationship between age and length of stay and other measures of resource use. (Essock-Vitale 1985, HCA 1985, NAPPH 1985). Children have the longest lengths of stay. Lengths of stay for adults are much lower but then rise again for elderly patients. For example, in a large private general hospital with a psychiatric unit, the mean length of stay for the children wards was 85.6 days compared to 22.8 days for the adult words (Essock-Vitale 1985). Medicare beneficiaries also showed the same age patterns, with the under 65 age grouping having shorter lengths of stay than the over 65 group. The under 65 group appears largely to comprise individuals who are covered by Medicare because of chronic mental disability. (Morrison et al., 1985).

Availability of social supports is thought to be associated with shorter lengths of stay. Marital status is a frequently used proxy for social support but evidence on its ability to predict length of stay is mixed. Taube et al. (1984) found marital status useful in constructing their alternative DRGs; however, other studies found no significant effects (BCWP 1985, NAPPH 1985). Leff et al. (1985) used whether the patient's admission address was different from the discharge address as a measure of availability of social support. He found that a change of address, indicating weak supports, was one of the more powerful predictors of length of stay, especially for the public psychiatric hospital. Nevertheless, he was able to account for little of the total variation. Horn (1985) included social support as one of the dimensions in her psychiatric severity of illness index which did fairly well in predicting resource use. .She did not report the precise definition of social support used or the contribution of

the social support measurement to performance of the PSOII.

Evidence on the relation of previous care to length of stay is inconsistent. Several studies found that a history of prior psychiatric hospitalization was associated with longer stays (BCWP 1985, McGuire 1085, NAPPH 1985). But Morrison (1985) found a slightly negative association between number of previous admissions and length of stay, even though length of the most recent previous hospitalization was positively correlated with length of stay. Taube et al. (1985) and HCA (1985) found no significant relationship between prior hospitalization and length of stay. There is also evidence that leaving against medical advice is associated with shorter stays (APA 1985, Essock-Vitale 1985, BCWP 1985). The performance of operating room procedures (APA 1985, Essock-Vitale 1985) and the presence of psychiatric complications and comorbidities were also associated with longer lengths of stay (APA 1985, NAPPH 1985). The effect of major procedures is, of course, also recognized DRG 424 of the current DRGs.

b. Hospital Variables. Some variables related to hospital characteristics do well in in explaining resource consumption. The first part of this appendix reviewed extensive evidence on the relationship of resource consumption to facility type. The type of facility in which treatment occurs is a consistently powerful predictor of length of stay and, whenever comparison is possible in a study, facility type alone is a better predictor of resources use than DRGs alone. Using national data, Taube et al. (1984), were able to increase the explanatory power of DRGs for length of stay from 3.2 percent to 17.2 percent by adding a facility type variable. Similarly, in McGuire et al's (1985) analysis of insurance claims from

one state, DRGs accounted for 7.7 percent of the variation in hospital costs, and adding facility type increasing the explanatory power to 15.5 percent. Other studies also found that hospital type contributes significantly to explained variance (Leff 1985, APA 1985). Section C discusses the implication of these findings for the risk that PPS would lead to systematic penalties for specific classes of institutions.

Other hospital characteristics also predict resource use. McGuire et al (1985) found that urban location, area wage index and teaching status predicted cost per admission and that the marginal contribution of facility type fell by about one-half when variation in these factors was taken into account. They also found that the patients of non-psychiatrist physicians have shorter lengths of stay than those of psychiatrists, suggesting that psychiatrists have either a patients with more expensive needs or have more expensive practice patterns.

Leff et al's work (1985) which was based on data from four hospitals, one of which was a state facility found that the public facility had significantly longer lengths of stay than private facilities. Horn (1985) also found that proprietary ownership and teaching status were

associated with longer stays. Hospital size (total beds) (APA 1985), and region of the country (HCA 1985, Taube et al 1984) also predict length of stay.

Studies where individual hospitals were entered in regressions as dummy variables also found significant results (NAPPH 1985, Horn 1985),

further suggesting either that hospitals have "institutional practice styles" or that there are significant unmeasured differences in case mix between hospitals. The importance of hospital characteristics and of hospital dummy variables, after correcting for case mix (measured by DRGs), does clearly indicate that different hospitals treat patients in the same DRG in quite different ways.

Although many patient and hospital variables have been shown to be associated with costs and length of stay, none of the variables explains a substantial proportion of the variation. Even studies which included many different variables in a "kitchen sink" approach explained no more than a third of the variation in length of stay (NAPPH 1985).

4. Alternative Classification Systems. Several of the existing case mix algorithms which have been used for medical and surgical discharges, have been applied to psychiatric discharges. These include: Disease Staging, Patient Management Categories (PMCs) and Severity of Illness Index. Other classification systems, specific to psychiatric diagnoses, have also been developed. Table 2.3 presents a summary comparison of these different classification systems using length of stay as the measure of resource consumption.

All of the alternative classification schemes which were examined explained more of the variance in resource use than did DRGs. Table 2.3 shows that the explanatory power was uniformly less than eighteen percentage points with the one exception of the Psychiatric Severity of Illness Index. Section D discusses whether payment option adjustments, such as a lower threshold for outliers, can make some of these classification schemes more usable for reimbursement. Some of these classification systems also require extracting from the medical record

information beyond the usual Medicare data requirements, which might present administrative problems.

(1) Staging. Disease Staging was developed by Dr. Joseph Gonnella and is now being further developed by Systemetrics. Disease Staging is an algorithm which assigns diseases to categories according to principal diagnosis, taking into account the relationship of multiple diagnoses. The categories are then staged on a scale of 0 to 4. The data required for "staging" are contained in the discharge abstract. An examination of the five largest psychiatric categories found no consistent relationship between increasing costs and higher level stages except for stage 4 (death) which was always more costly. However, Freiman et al. (1985) found, using Medicare claims data for four states, that "staging" predicted resource use better than DRGs for all four states using both costs and length of stay as measures of resource use. For hospital costs, DRGs explained between 3.6 and 5.3 percent of the variance, whereas staging accounted for between 5.7 and 10.5 percent of the variance. Between 4.4 and 8.2 percent of the variance in length of stay was explained by DRGs, compared to 5.8 to 12.0 percent for staging. These higher values for staging are at least partly related to the fact that staging with approximately 65 groups yields many more categories than DRGs.

(2) Patient Management Categories. Patient management categories (PMCs) for psychiatric admissions have been developed by researchers at Blue Cross of Western Pennsylvania. Adult psychiatric admissions to short-term general hospitals are described by 18 "original" PMCs which can be constructed from data in the discharge abstract. Overall, the "original" psychiatric PMCs explained more of the variance in length of

stay than did DRGs (18.1 versus 15.0 percent) for discharges from general hospitals in the Western Pennsylvania region; however, the mental illness PMC categories did better than DRGs while the drug and alcohol PMCs did not do as well as the DRGs. PMCs and DRGs were refined by the addition of age and discharge status as modifiers yielding 26 "revised" PMCs and 24 "revised" DRGs. The "revised" PMCs out-performed the "revised" DRGs overall, adding about 3 percentage points in explained variation to both methods, and they also did better for the mental illness as well as drug abuse categories (BCWP, 1985).

(3) Psychiatric Severity of Illness Index. The Psychiatric Severity of Illness Index (PSOII) was developed by Susan Horn and colleagues at Johns Hopkins University. The PSOII scores patients from 1 to 4 based on an evaluation along seven dimensions: stage of principal diagnosis; complications; interactions; level of care; social support; rate of response to therapy and resolution of acute symptoms. Assignment of a PSOII to a discharge requires obtaining information directly from the medical record. Horn and associates are developing a computerized version of the index. The PSOII was tested at ten hospitals: four freestanding psychiatric facilities and six short-term general hospitals with psychiatric units. Approximately 15 percent of discharges could not be assigned a PSOII and were not included in the analysis. For all remaining discharges, the four PSOII explained 34 percent of the variation in actual treatment costs compared to seven percent for DRGs. When the DRGs were adjusted for severity of illness, the explained variation increased to 42 percent. When the data were also trimmed to exclude discharges with lengths of stay greater than 180 days, the PSOII accounted for 36 percent of the variation, the DRGs almost doubled to 13 percent and the

severity-adjusted DRGs explained 46 percent of the variation. When the data were trimmed to exclude "special cases" (e.g., discharges against medical advice, transfers to other acute care facilities or a non-psychiatric unit, patients who where treated according to a protocol, and premature discharges for reasons such as insufficient insurance coverage), the PSOII alone accounted for 50 per cent of variation in treatment costs and the severity-adjusted DRGs accounted for 55 per cent, while DRGs alone continued to account for only 6 per cent. However, excluding these special cases reduced the number of discharges in the analysis by about 40 percent. These results suggest that trimming data can have dramatic effects on the performance of both DRGs and the PSOII (Horn 1985); the PPS outlier policy is one form of such trimming.

The PSOII and the severity-adjusted DRGs did particularly well in explaining variation in resource use. Further research is warranted to test the index on hospitals representing different regions of the country, hospitals without psychiatric units and state facilities. In addition, analysis focused on the relative contribution of the subscales and on a mathematical way to construct the PSOII score from the subscales would be valuable. The dimensions termed "response to therapy" and "resolution of acute symptoms" could be problematic because, while probably highly correlated with resource use, it is not possible to distinguish whether response is slow because of patient characteristics or because of provider efficiency and effectiveness. The latter is of concern in a reimbursement scheme which has the explicit purpose of promoting the cost-effective provision of services.

(5) Resource Utilization Groups System. The Veterans Administration is developing a classification system for psychiatric and substance abuse

patients which will be applicable for resource allocation purposes. It is planned to revise the Resource Utilization Groups System (RUGS) which is a case mix classification system for nursing home patients. RUGs is hypothesized to be particularly relevant for the psychiatric area given that both nursing home care and psychiatric care are labor-intensive. Data collection is in process (Ashcraft 1985).

(6) Alternate DRGs. Alternate DRGs (ADRGs) were formed by grouping psychiatric diagnoses into categories according to their statistical ability to predict length of stay. These groups were expanded into additional categories in order to improve clinical meaningfulness. These diagnostic groupings were further modified by selectively taking into account type of treatment, age, marital status, legal status, discharge status, prior mental health care and referral status. These resulting 22 ADRGs explained 11.8 percent of the variance in a national sample of discharges which included short-term general hospitals, freestanding psychiatric hospitals and state/county psychiatric facilities compared to 3.2 percent for DRGs (Taube et al., 1984).

(7) Functionally Related Groups. Functionally Related Groups (FRGs) is a system of classification of mental disorders developed by Stephen Leff and colleagues at the Human Services Research Institute. It is based on the Resource Associated Functional Level Scale (RAFLS) and requires data extraction from the medical record. By incorporating level of functioning as a variable, it measures intensity of resource need. It was tested on a sample of discharges from four hospitals within one catchment area consisting of one state facility and three general hospitals with psychiatric units varying along ownership dimensions. Across all hospital types, FRGs accounted for a larger percent of the variance than did DRGs

(5.6 versus 2.0 percent, respectively). DRGs combined with FRGs accounted for no more of the variance in length of stay than did FRGs alone (Leff, 1985).

(8) Case Mix Groupings. Case Mix Groupings (CMGs) were developed for the National Association of Private Psychiatric Hospitals (NAPPH) in their exploration of alternative prospective payment systems for inpatient psychiatric care. This classification system relies on information available in the medical record and was tested on a sample of discharges from 32 NAPPH member hospitals. The CMG system consists of thirteen groups which are constructed from combinations of four variables: (1) MDC 19 (mental illness) versus MDC 20 (substance abuse), (2) age, (3) transfer status and (4) presence of psychiatric complication and comorbidities. The CMGs accounted for 7.8 per cent of the variation in length of stay while the DRGs accounted for 3.9 percent of the variation.

(9) Clinically Related Groups. Clinically Related Groups (CRGs) represent revised DRGs developed by Macro et al. (1985) using a four-state sample of Medicare claims data. The revisions involved both disaggregating some DRGs, most notably DRG 430 (psychoses) and creating other groups which combined DRGs. Presence of secondary diagnoses, as well an over-/under-65 age variable were also used. The revisions resulted in 16 CRGs. CRGs explained between 4.4 and 9.6 percent of the variation in hospital costs compared to between 3.6 and 5.3 percent for DRGs. CRGs explained more of the variation in length of stay, ranging from 5.4 to 12.3 percent for CRGs compared with 4.4 to 8.2 percent for DRGs.

Revised Clinically Related Groups were constructed based on selective combinations of Clinically Related Groups, age, and status of the treating

psychiatric unit with respect to PPS exclusion. DRGs 424 and 433-438 were excluded. The resulting 10 groups explained 7.1-14.5 per cent of the variation in length of stay and 7.6-13.9 per cent of hospital costs (Freiman et al 1985).

(10) Alternative Classification Groups. Alternative Classification Groups (ACGs) were developed by Morrison et al. (1985) as a further refinement to DRGs. ACGs were only developed for MDC 19 (mental illness) and did not incorporate MDC 20 (substance abuse). The three stratifying variables include diagnosis, age and type of hospital and resulted in twelve ACGs. Just three diagnostic groupings were used: organic disturbances (DRG 429), psychoses (DRG 430) and all other mental illness diagnoses (DRG 425-428; 431-432). Two age groups were used: under-65 and over-65. Type of hospital grouped discharges into those occurring in excluded hospitals and those in non-excluded hospitals. Testing of the ACGs was done on both national Medicare claims data for several years, as well as for six selected states. In no case did the explanatory power of the ACGs rise above 3.6 percent; however, this was better than the DRGs which accounted for a negligible amount of variation. Using length of stay as the measure of resource use led to explained variation of 2.6 percent for ACGs compared to 1.0 percent for DRGs. For total charges, the amount of variance accounted for by ACGs was 3.6 percent compared to 1.1 percent for DRGs. Freiman et al, (1985), using the same clasifcation system, found state level explanation of variance ranging from 7.5 to 17.3 per cent for length of stay and 9.0-15.3 for costs.

In an alternative approach, new ACGs were defined exactly as ACGs except that hospital type was redefined to be hospitals with a psychiatric unit of ten or more beds and those without such units. These new ACGs

performed slightly better than the original ACGs with respect to explanatory power. Morrison et al provided no hypotheses as to why the performance of this system was so poor--the fact that the performance of DRGs was far worse than in any other reported study suggests an unexplained difference between this and other studies; one explanation may be the use of untrimmmed data.

(11) Cox Proportional Hazard Model. Siegel and associates have proposed an alternative classification strategy based on a different statistical methodology. Instead of creating groups into which cases are placed, they make an individualized prediction of length of stay for each patient use the Cox proportional hazard model; this model has the further attraction of estimating the accuracy of the predicted length of stay. Siegel et al. used a large group of variables to predict length of stay, including sex, age, race, marital status, education, prior mental health service, source of referral, legal status, veteran status and referral on discharge. When this method was applied for each DRG on a national sample of general hospital discharges, it produced an average 19 percent improvement over the present DRGs (Siegel, 1985). Clearly, some of these variables present problems for a reimbursement system--for example, it may not be desirable to reward a hospital heavily for making one referral rather than another on discharge. Nevertheless, the method appears to be powerful and to deserve further exploration with other data and selected variables. Their method can be used to refine any classification system or could be used without a classification system for all patients within an MDC.

C. IMPACT OF PAYING USING DRGs AND MODIFICATIONS. The last section focused on how well DRGs and other classification systems can predict

resource use. This section concentrates on what would happen if the ADM DRGs, with or without modifications, were used as a basis of payment. There are two kinds of issues--non-systematic risk and systematic risk (McGuire 1985a). The former results from random variation in case cost within a DRG--the kind of variation which averages out when a hospital has enough cases but which does not average out with small numbers of cases if there is substantial variation within the DRG. This non-systematic risk is a matter for special concern because the research on potential replacements for DRGs shows that all of the alternative have high degrees of internal variation. By contrast, systematic risk occurs if different kinds of facilities receive different kinds of patients and if these differences are not be measured by the case mix system.

One of the chief areas of concern regarding the inclusion of psychiatric care under PPS relates to whether certain institutions or types of facilities, such as freestanding psychiatric hospitals or hospitals with a psychiatric unit, would be under-reimbursed under a DRG or related classification system.

Research evidence to date indicates that this concern regarding the fairness of PPS for certain types of facilities is justified. Certain types of facilities would receive substantially less than at present while others would receive substantially more. All of the studies which were able to examine directly the impact of facility type on explained variance after controlling for case mix either by DRG or some other system found that facility type is a strong predictor of resource use (Leff, 1985, APA, 1985, Taube et al., 1984 and Freiman et al. 1985). There are two competing explanations which may not be mutually exclusive:

--Hospital type may be functioning as a proxy for patient need in that

some hospital types will get a systematically more costly selection of patients, controlling for DRG.

--Certain types of facilities may have differing treatment philosophies and while patient needs may not differ, the hospital will have a more costly group of patients because of more intensive practice patterns. This latter argument assumes that facility type is functioning as of proxy for style of practice not for patient need.

Regardless of the explanation, if certain facilities have higher costs after all corrections have been made, and if all facilities are paid the same amount per case after these correction are made, it is clear that the more expensive facilities will loose systematically under the reimbursement system.

Little research to date has focused on the degree to which differences in resource use reflect different styles of practice of providers or unexplained-for differences in patient needs. In examining this issue using the data presented in Taube et al. (1984), McGuire et al. (1985) argue that facility type is at least in part a proxy for patient need. They calculate that in the Taube et al. (1984) study, 38 percent of the explanatory power of facility type is due to measured variables related to patient need.

Whether the explanation for differences in resource use is patient need or style of practice, the available evidence indicates that the current DRG system would systematically penalize certain institutions. To the extent that it is provider practice patterns that account for differences, styles of practice could be changed under a DRG system, perhaps with no impact on quality of care. However, to the extent that patient need explains these differences, incentives in the DRG system

could harm patients. These provider response issues are discussed in greater detail in the next section.

1. Patient-Level Analysis. Another way to examine the issue of systematic penalties to institutions is to simulate the PPS payment for psychiatric admissions to different types of facilities. Large differences in resource use within DRG categories between unit and non-unit general hospitals have already been discussed; however, since PPS payments vary according to adjustments made for teaching costs, outliers, area wage levels and urban/rural location, as well as DRG, all of these adjustments should be included when simulating the impact of PPS. Freiman et al. (1985) examined how general hospitals with PPS-excluded units and non-excluded general hospitals would have fared under PPS in three states (Table 2.4). In all states, the average DRG payment is much larger for excluded unit hospitals than non-excluded units; however, for excluded units this simulated DRG payment was less than the actual payment in 1982. For non-excluded hospitals the simulated DRG payment was substantially greater than the actual payment in two of the three states. In all states, PPS would make payments to excluded and non-excluded hospitals more alike than they now are, which means that, taken as a group, non-excluded units would gain under PPS and excluded units would lose. However, the unit of analysis is the discharge and therefore does not account for the fact that high cost and low cost patients are concentrated in different hospitals within the excluded and non-excluded groups. As a result of this concentration, some hospitals within a group would do relatively much better than others. This issue is addressed by the hospital-level analysis in the following section.

A breakdown of the components of the simulated PPS payments at the

discharge level indicated that excluded units have a more complex average case mix, have a significantly greater involvement with medical education activities and have greater outlier payments for all three of the study states. A separate analysis of New Jersey, a state waivered from PPS participation and thus not having excluded and non-excluded units, showed similar patterns with respect to hospitals with and without units. However, the simulated DRG payments were greater than actual payments for both unit and non-unit hospitals although the magnitude of the difference was larger for hospitals without units. New Jersey has had a prospective payment system for several years, and this data suggests that prospective payment does not necessarily abolish the differences between unit and non-unit hospitals persist. The incentives of the New Jersey system are, however, relatively weak compared to Medicare PPS.

In a discharge level analysis. Freiman et al (1985) showed substantial differences across states in addition to the differences between excluded and non-excluded hospitals within states. This provides further documentation for state differences in practice patterns which complement the differences in system structure discussed in Part I.

2. Winning and Losing Hospitals under PPS. Since it is the hospital which is at financial risk and not the individual patient, it is appropriate to examine the effects of PPS using the hospital as the unit of analysis. The available evidence suggests that the majority of hospitals would at least break even under PPS; however, a substantial minority of hospitals, especially those with excluded units, would not fare well under PPS.

In examining the issue of systematic penalties to institutions at the hospital level, the APA study (1985) focused on the distribution of high

cost patients among general hospitals with psychiatric discharges. High cost patients were defined to be discharges which would qualify for outlier payments under PPS. The distribution of outlier cases was not randomly distributed among hospitals; a few hospitals received a disproportionate share of high cost cases. Over half of hospitals had no outliers, while 13 percent of all hospitals accounted for 77 percent of all outliers. In this 13 per cent of hospitals, outliers accounted for more than 15 per cent of the case load. Hospitals with psychiatric units were more likely than hospitals without units to have outlier patients and to have outliers account for a high proportion of their caseload. The APA study did not simulate the likely effects of implementing PPS but rather focused on the distribution of high cost outliers. The study did not address whether, for an individual hospital, the high cost patient load was balanced by low cost patients, which could produce a break-even for the hospital. An alternative, that the outliers were simply a manifestation of an overall pattern of long stays and high costs, was also not tested.

Freiman et al. (1985) performed a simulation of PPS at the hospital level for selected states. In all three states, hospitals without excluded units averaged a gain under PPS. In two states, almost all non-excluded hospitals broke even or better with most of the losing non-excluded hospitals concentrated in one state. Hospitals with excluded units fared less well, with all three states averaging a loss for excluded units. The majority of hospitals with excluded units broke even or better, although in two states almost one-third of excluded unit hospitals were losers. Losing hospitals tend to be large, to have teaching programs, and to be located inurban areas. Winning and break-even

hospitals are numerically preponderant despite an overall average loss for excluded unit hospitals because the bulk of losing discharges is clustered in a few large facilities. The variation in the amount of average gains or loses across states is striking again pointing out substantial state differences in the potential impact of a PPS.

A PPS simulation on a sample of private psychiatric facilities obtained results comparable to the above simulation of excluded units. Sixteen percent of the sample hospitals would lose more than one-third of their Medicare revenues, while almost 30 percent of the hospitals would increase their Medicare revenues by more than 50 percent (NAPPH).

3. Provider Response. PPS creates strong financial incentives to curtail resource use during an episode of hospital care, and critics are concerned that these incentives could reduce quality of care or access to care as well as making care more efficient. These concerns focus on selective admissions, curtailed treatment, inappropriate transfers, and premature discharges. Some writers (APA 1985) have argued that the psychiatric system is particularly vulnerable to such pressures; other (Frank & Lave 1985, Rupp 1984) have argued that the effects of such pressures are already visible in the psychiatric inpatient care system. Other concerns, such as inaccurate assignment into a higher paying DRG and readmissions to split the episode of care into more than one reimbursable hospital stay are concerns which relate more to "gaming" of PPS. These concerns are discussed in greater detail below, as is the lack of empirical evidence to document the likely magnitude of provider response.

Selective admission practices can occur when it is possible for a provider to identify prior to admission patients which are likely to be winners, i.e., cost less than the DRG payment, or losers, i.e., cost more

than the DRG payment. Unless the characteristics which are associated with a high- or a low-cost patient are incorporated into the classification scheme, incentives to select or avoid patients on the basis of these characteristics are created by PPS. The practice of selecting low-cost patients or "skimming" probably does not have deleterious outcomes for the patient, unless the patient is unnecessarily admitted to the hospital. However, discrimination against high-cost patients would result in access problems for these patients. If private hospitals refuse to admit financially "undesirable" patients, those patients are likely to go to and create a financial loss for public hospitals.

There is also concern that PPS will lead to the premature discharge of costly patients or other forms of treatment curtailment. Fears have been expressed that the premature discharge of patients from private facilities would lead to an increase in transfers to public facilities, a practice sometimes referred to as "dumping." (NASMHPD, 1985). Others worry about the lack of alternatives to hospitalization for the discharged patient who may still need care, but not at the same level of intensity as provided in an inpatient setting. It is argued that the current PPS approach would lead to premature discharge without appropriate alternative care, which could add to the numbers of the homeless population (APA, 1985).

In addition to the incentive for treatment curtailment, PPS also contains incentives to manipulate the system in order to increase reimbursement. While this "gaming" of the system may not have deleterious effects on patients, it does not promote a cost-effective system. "Gaming" may take many forms, such as upgrading diagnoses, splitting admissions and prolonging length of stay for patients near the outlier cutoff (Gertman and Lowenstein, 1984). There is evidence that DRG

upgrading, also known as "DRG creep" may occur in psychiatry. After the introduction of a prospective payment system in New Jersey in 1980, admissions for psychoses, the most generously reimbursed category, rose from 58 percent to 80 percent of total admissions (Goldman et al. 1984). However, the change in coding does not prove gaming; there has been some historical tendency to avoid discharge diagnoses of psychosis in possibly equivocal cases in order to avoid "labeling" patients. There is substantial evidence that PPS results in more attention to diagnosis and coding, and a recent study indicates that more accurate coding does result in higher reimbursement under DRGs across different kinds of medical conditions (Lloyd & Rissing 1985). There has been a general movement toward coding of conditions with higher reimbursement in all of medicine since PPS went into effect (Carter & Ginzburg 1985).

In contrast to medical and surgical hospitalization, psychiatric care is characterized by a high level of readmission rates. This has significant implications for the structuring of a prospective payment system since there could be ample opportunity to game the system by splitting the admission. Another consideration is that readmission may be a form of patient transfer to a more specialized facility and not really reflect recidivism. An analysis of Medicare claims data found that in 1983, 20 percent of psychiatric discharges had been for patients who had at least one admission during the preceding 12 months. Ten percent of these readmissions had 3 or more admissions during the year. Most prior admissions took place within the preceding twelve months and over one-half occurred in the preceding six months. Short-term readmissions, defined as occurring within one week, accounted for less that 2 percent of all admissions and 7 percent of all readmissions. Overall, 40 percent of

readmissions involved a shift in provider. For readmissions which occurred within one week, 70 percent involved a shift in provider (Morrison et al. 1985). The pronounced level of readmissions for psychiatric discharges indicates that gaming by splitting admissions is a legitimate concern which will need to be addressed if PPS is implemented for currently excluded facilities.

All of these concerns relate to how providers will respond to PPS and it is the area of research where the least has been done. The PPS simulations which were discussed in a previous section, while useful, cannot comprehensively assess the likely impact of provider response because the pre-PPS data on which the simulations are based do not reflect the changed incentives under which providers would behave if PPS were in place. Only two studies to date have explicitly dealt with the provider response issue as it relates to prospective payment.

Rupp et al. (1984) analyzed the effect of hospital payment methods on the pattern and cost of mental health care for a group of Medicare patients treated in acute general hospitals in Maryland. The prospectively determined per case reimbursement method reduced the cost of a hospital stay, but the cost reduction appeared to be offset by a higher readmission rate.

Frank and Lave (1985a) examined the impact of Medicaid psychiatric benefit design on length of stay and transfer pattern. Under the Medicaid program, hospitals received a prospectively determined amount per day until the coverage limit was reached. The results showed that limits on the number of covered days per admission had a significant and positive effect on transfers to state facilities. Frank and Lave argue that to the extent that hospitals view the payment per case under PPS as similar to

the limits on reimbursable days under Medicare, then patients may be discharged prematurely or transferred to state mental hospitals.

Both these studies mark a beginning in documenting the importance of provider or "supply" response to prospective payments. Further research is needed on both patterns of provider response, as well as the magnitude of the response with respect to reductions in length of stay. Above all, it will be important, in psychiatry as in the rest of medicine, to determine whether hospitals respond to prospective payment by becoming more efficient or by curtailing treatment and turning away potentially unprofitable patients.

D. ALTERNATIVE PAYMENT STRATEGIES. The admission and hospital level simulations discussed in preceding sections represented PPS under current outlier policy and with DRGs as currently formulated. In this section, simulations for several modifications of PPS outlier policy are compared, as well as simulations based on non-DRG classification schemes. In the next section, alternative payment strategies are discussed which while retaining prospective components also attempt to introduce measures which temper the incentives under the current PPS.

1. Options Simulations. Freiman et al. (1985) simulated six options for changing the current Medicare PPS for ADM inpatient services. Table 2.4 summarizes the projected impact of implementing PPS as well as each of these six options. It is important to realize that this projection is static--that is, it assumes no change in medical practice. As experience in medicine and surgery under PPS has shown, medical practice, at least as reflected in length of stay, does change significantly in response to payment by the case. The previous section examined the limited evidence on the response of psychiatric providers to changes analogous to PPS.

The actual average payment for ADM Medicare admissions in general hospitals is presented for three states broken down according to whether or not the admission took place in an excluded unit and for one waivered stated according to whether the hospital had a separate psychiatric unit. The impact of the simulated PPS and options payments is expressed as the difference between the simulated payment and the actual payment. For example, for ADM admissions which took place in general hospitals with excluded units in Michigan, the actual average Medicare payment was $3,952. For these same admissions, the average payment under PPS would have been $804 less than the actual payment. Similarly, for option 1 the simulated payment is $748 less than the actual payment.

It should be noted that the simulations for options 1 and 2 were based on all ADM admissions, while the simulations for options 3-6 excluded admissions which fell into DRG 424 and 433-438. Thus, while options 1 and 2 can be compared with each other and options 3-6 can be compared among themselves, comparisons across both sets of options must be made cautiously with respect to magnitude. In general, dropping these DRGs resulted in larger actual average payments, indicating that the average substance abuse admission is less costly than the average psychiatric admission. Thus, the simulated payment differentials for options 3-6 are larger in absolute terms than they would have been if the simulations had been based on all ADM admissions. The exception is admissions to excluded units in Washington.

Options 1-4 relate to different scenarios for altering outlier payment policies for the current Medicare PPS. Option 1 shows the likely impact of decreasing the outlier threshold by five days. Option 2 reflects decreasing the outlier threshold by four days in combination with a low

length of stay outlier, i.e., stays shorter than 60 percent of the geometric mean length of stay. Option 3 simulates decreasing the outlier threshold by ten days and increasing the per diem reimbursement to 80 percent. Option 4 demonstrates the likely impact of increasing the cost outlier payment to 80 percent of the difference between actual cost and 1.4 times the adjusted DRG payment, in combination with a low-cost outlier (40 percent of the amount by which actual costs fall short of 0.4 times the adjusted DRG payment) and shifting the emphasis in outlier payments from length of stay to cost.

Overall, Table 2.4 shows that changing the outlier policy can substantially moderate the impact of PPS. As the modifications in the outlier policy become more extreme, the effect on the differences is greater. Under all four options, the average payment for individuals in non-excluded units would still represent a gain over the actual payment except in Michigan. Making the outlier policy more generous clearly moderates the likely impact of PPS on excluded unit hospitals yet two of the states still show a loss for admissions to excluded unit hospitals. It follows then that under PPS and all of the modifying options considered, there would be considerable redistribution of funds between states. In Michigan, the most costly state, the average admission would loose in excluded units both under PPS and under the six options. Michigan with the exception of option 4 would also lose with admissions in non-excluded units. In New Jersey, a state waivered from PPS participation because of having its own prospective system, admissions in both unit and non-unit hospitals are consistent gainers under all scenarios. Within states, options which increased outlier payments reduced the systematic penalties to excluded hospitals.

Options 5 and 6 represent simulations for non-DRG classification schemes. Option 5 is the Alternate Classification Groups system described above, which divides the Medicare psychiatric admissions into twelve groupings along three dimensions: (1) excluded or non-excluded unit; (2) age greater or less than 65 years; and (3) three DRG regroupings (429, 430 and other). Option 6 is based on a classification scheme with ten groupings based on selective combinations of Clinically Related Groups, age and whether the unit is PPS excluded.

The simulated payments under options 5 and 6 are quite similar. These options also resulted in a more favorable financial situation on average for individuals treated in unit hospitals. Only Michigan had admissions in unit hospitals showing a loss from the average actual payment; however, the loss was smaller than under the simulations for options 1-4. With the exception of Michigan, in non-excluded hospitals and hospitals without units, the simulated payments were greater than the actual payments although they were less than the payments under the outlier modifications. In Michigan and North Carolina, options 5 and 6 resulted in a leveling between admissions in excluded units and non-excluded hospitals; however, for Washington and New Jersey the differences between hospital types remained substantial.

Another striking feature in Table 2.4 is the pronounced difference in actual payments between states. For example, in Michigan the average payment per admission which took place in an excluded unit hospital is 26-34 percent more expensive than similar admissions in the other states. The same wide range of actual payments is apparent in states for non-excluded hospitals and hospitals without units. Pronounced state differences still remain under all of the options which were examined.

2. Other Payment Strategies. The options simulations discussed in the preceding section were all based on the assumption of payments being determined prospectively. The incentives created by a prospective payment system are to encourage providers to supply less services. Many of the concerns about the prospective payment of services relate to whether or not providers will support the correct level of care to the right people when faced with strong incentives to cut back on the provision of care. These concerns relate to provider response issues and have been discussed in detail previously. This section discusses some proposals for payment strategies which while still retaining a prospective component, attempt to introduce a countering force to mitigate provider response which might be detrimental to patients.

McGuire et al. (1985) and Ellis and McGuire (1985) suggest that a mixed system which combines cost-based and prospective reimbursement would mitigate the incentive to undersupply services inherent in prospective payment alone as well as curb the incentive under cost-based reimbursement alone to oversupply services. A mixed system may have some other advantages. Since the gain or loss per admission is less under a mixed system, then the incentive to selectively admit profitable patients is moderated. Since a mixed system reduces the differences in the prospective payment amount between categories, the incentive to game the prospective system is reduced. Finally, a mixed system also does better than a purely prospective system in diminishing both the systematic and unsystematic risk faced by a hospital. Because the loss or gain for every admission is less under a mixed system than under a purely prospective system, then the random or unsystematic risk is thereby lessened. A mixed system, by tying part of the payment to costs, would also diminish the

impact of systematic risk. The cost-based component of payment in a mixed system need not depend on the individual hospital's cost, but could be based on a regional or nationwide average of, for example, cost per day. Viewed in this way, a mixed system is equivalent to a PPS with a very liberal outlier payment policy. Ellis and McGuire (1985) develop an analogy between prospective payment and cost sharing by providers and use this analogy to assess the advantages of a mixed system.

Frank and Lave (1985) propose a plan for prospective payment for inpatient psychiatric care which combines three elements: a declining prospective per diem reimbursement, a limit on the length of stay and formal utilization review. The per diem rate would decline with length of stay, an idea consistent with the idea that the per diem cost of treating a patient decreases with length of stay. The declining aspect of the per diem payment would dampen the incentive to extend hospital days. A limit on reimbursable days would function not as an absolute limit but rather as a mechanism to trigger a formal evaluation of patient needs. The limit on reimbursable days provides a strong incentive to discharge before the limit is reached; however, the possibility that utilization review would allow exceptions to the limit would curb the incentive to discharge prematurely. Their method somewhat resembles cost-based reimbursement with strong utilization review, but the use of declining block pricing implies uniform per diems across facilities which reduces the flexibility of the institution in substituting more intense care for length of stay.

Siegel et al (1985) suggest that their statistical method for assigning individual predicted length of stay to a patient, which was discussed above, could also be used for developing payment strategies. For example, outliers could be determined individually for the predicted

lengths of stay; individually assigned predicted lengths of stay also allow payment strategies based on individualized block payment rates. The range of days for each block payment could be selected to minimize error in estimating cost. Block payments and liberal outlier policies are both consistent with the notion of mitigating the incentives of per case payment to undersupply services.

TABLE 2.1
Percent Distribution, Length of Stay and Disability Status

MEDICARE ADM Discharges by DRG

DRG	Percent of All Cases	Length of Stay Mean	C.V.	Median	Skewness	Percen Disable
MDC 19						
424 O.R. Procs w/Princip DX Mental Illness	4.5	21.6	1.09	15.17	4.77	23.2
425 Acute Adjust React and Disturbs of Psychosocial Dysfunction	9.4	9.3	1.09	6.18	3.51	23.8
426 Depressive Neuroses	13.6	13.8	.95	9.63	2.50	28.4
427 Neuroses Except Depressive	1.3	10.6	1.10	6.70	2.87	28.9
428 Disorders of Personality and Impulse Control	1.0	12.2	1.10	7.94	3.18	59.3
429 Organic Disturbs and Mental Retardation	22.0	13.2	1.39	8.94	13.38	8.3
430 Psychoses	27.6	16.4	1.03	11.93	8.05	48.3
431 Childhood Mental Disorders	.2	11.4	1.58	6.58	6.07	35.5
432 Other Diagnoses of Mental Disorders	.3	11.2	1.20	7.38	4.56	33.7
MDC 20						
433 Substance Use and Subst Induced Organic Mental Disorders, Left APA						
434 Drug Dependence	.4	13.2	.86	9.21	1.28	54.4
435 Drug Use Except Dependence	.3	9.2	.96	6.38	2.32	8.2
437 Alcohol Use	.5	1.4	1.00	7.27	2.85	48.6
437 Alcohol Use Except Dependence	.8	6.4	1.13	3.86	2.31	41.4
438 Alcohol and Subs Induced	18.0	9.6	1.01	6.44	3.96	41.3

Organic Mental Syndrome

SOURCE: MEDPAR 1979-1981. Adapted from Morrison et al. Table 3.2

TABLE 2.2

VARIATION IN RESOURCE USE EXPLAINED BY ADM DRGs

Study	Measure of Resource Use	Hospital Type	Nationally Representative	Only Medicare Discharges	Percent Explained Variation
Freiman et al					
N. Carolina	costs (los)	general	no	yes	3.6 (7.5)
New Jersey	costs (los)	general	no	yes	3.6 (4.4)
Michigan	costs (los)	general	no	yes	3.9 (8.2)
New Jersey	costs (los)	general	no	yes	5.3 (7.8)
McGuire et al	costs	both	no	no	7.7
APA	l.o.s.	general	yes	yes	5.6
NAPPH	l.o.s.	psych-iatric	yes	no	3.9
BCWP	l.o.s.	general	no	no	15.0
Horn	l.o.s.	both	no	no	7.0
HCA	l.o.s.	psych-iatric	no	no	3.0
Essock-Vitale	l.o.s. (nursing hrs.)	general	no	yes	8.0 (6.0)
Leff et al	l.o.s.	both	no	no	2.0
Taube et al	l.o.s.	both	yes	no	3.2

TABLE 2.3
VARIATION IN LENGTHS OF STAY EXPLAINED
BY DRGs AND ALTERNATIVE CLASSIFICATION SYSTEMS

	Percent Explained Variation	
	Alternative System	DRG
Staging (Freiman et al., 1985)	5.8 - 12.0	4.4 - 8.2
Patient Management Categories (BCWP, 1985)	18.1	15.0
Severity of Illness (Horn, 1985)	34.	7.
Alternate DRGs (Taube et al., 1984)	11.8	3.2
Functionally Related Groups (Leff et al., 1985)	5.6	2.0
Case Mix Groupings (NAPPH)	7.8	3.9
nically Related Groups (Freiman et al 1985)	5.4 - 12.3	4.4 - 8.2
Revised Clinically Related Groups* (Freiman et al 1985)	7.1 - 14.5*	3.7 - 6.3*
Alternate Classification Groups (Morrison et al., 1985)	2.6*	1.0*
Alternate Classification Groups (Freiman et al., 1985)	7.5-17.3*	3.7 - 6.3*

*Note that the substance abuse DRGs (MDC 20) are not included.

TABLE 2.4
ACTUAL PAYMENTS AND SIMULATIONS OF PPS AND MODIFYING OPTIONS
FOR MEDICARE ADM ADMISSIONS IN GENERAL HOSPITALS FOR SELECTED STATES
BY UNIT STATUS
1982 DATA

	Michigan		North Carolina		Washington		New Jersey	
Unit Status	ex-cluded	Non-ex-cluded	ex-cluded	Non-ex-cluded	ex-cluded	Non-ex-cluded	Unit	Without Unit
Actual Payment*	3,952	2,663	2,632	1,418	2,899	1,546	2,910	2,386
Loss or gain under different options:								
PPS*	-804	-100	-183	+414	-141	+528	+300	+529
Opt 1*	-748	-113	-186	+379	-160	+475	+317	+502
Opt 2*	-741	-126	-187	+367	-198	+400	+325	+509
Actual Payments**	4,205	2,754	2,870	1,518	2,821	1,599	3,061	2,493
Difference between simulated payment and actual for:								
PPS**	-888	-109	-308	+382	+258	+540	+293	+562
Opt 3**	-693	-114	-349	+304	+126	+332	+425	+566
Opt 4**	-588	+36	-218	+367	+240	+534	+103	+397
Opt 5**	-453	-402	+114	+126	+623	+260	+637	+171
Opt 6**	-550	-441	+79	+128	+624	+247	+605	+196

*Includes all ADM admissions
**Excludes admissions which fall into DRGs 424 and 433-438

Source: Constructed from data presented in Freiman et al. 1985

PSYCHIATRIC FACILITIES: PART III

IMPLICATIONS OF RESEARCH RESULTS FOR ESTABLISHING PER DISCHARGE PRICES

A. ACCOMPLISHMENTS OF RESEARCH. The psychiatric community responded to the exclusion granted in 1983 with an unprecedented research effort by many organizations. The National Institute of Mental Health (NIMH) has funded three studies (the largest with majority co-funding from HCFA), and the American Psychiatric Association (APA), the National Association of Private Psychiatric Hospitals (NAPPH), the National Association of State Mental Health Program Directors (NASMHPD), the Hospital Corporation of America (HCA), and others have funded independent studies. The conclusion of these studies, as well as of internal NIMH studies is unanimous--implenting current DRGs for presently excluded psychiatric hospitals and units would be little better than paying by the admission without considering any feature of the patient's condition. The redistributive impact of such a payment system among hospitals and units would be very large, and there is no evidence that such redistribution would be appropriate.

While the commitment of resources to these studies has precluded equally intense studies of alternatives, important design alternatives have emerged and been explored. Neither the impact of these alternatives nor the fairness of the impact has been adequately studied, and further study appears to be necessary.

B. RESEARCH RESULTS. From the description of the service system in the first part of this appendix and the studies of per-case costs in the second part we can draw a series of conclusions which have major implications for design of a prospective payment system for psychiatry.

1. ABILITY TO EXPLAIN VARIATION IN COSTS OF CARE. Research has not

provided a gold standard for determining the resources which are needed for treatment of individual patients or groups of patients. The research shows that some of the existing variation in cost of treatment across patients and groups of patients can be traced to patient needs and to differing costs for labor and for medical education. But the vast majority of variation in cost remains unexplained, and the research does not show whether that unexplained variation is likely to be due to differences in patient needs, quality of care, or efficiency of care.

2. REDISTRIBUTION. Current DRGs would result in large redistributions of payments compared to the present system. Certain kinds of redistribution are especially clear:

--Discharges from "scatter beds" would be paid more than at present while discharges from beds in psychiatric hospitals and organized units would be paid less.

--The decrease in payments would be especially large for discharges from some psychiatric hospitals.

--Reallocations between states and between regions would be substantial.

3. APPROPRIATENESS OF REDISTRIBUTIONS BASED ON DRGS. The available case mix systems, including DRGs, are so weak in their explanatory power that they cannot be used to justify the reasonableness of the redistributions which would occur. That is, the available case mix measurement systems are so weak that it is not possible to demonstrate that cases in different hospitals are clinically similar or have similar necessary treatment costs. By contrast, the DRG system does provide substantial evidence of the comparability of cases across medical-surgical hospitals, even though DRGs are not powerful for non-surgical cases.

4. PROVIDER RESPONSE. There are enough differences between the medical-surgical system and the mental health system to make predicting responses to national per-case pricing very hazardous. In addition to the differences in the service system described in Part I of this appendix, Medicare beneficiaries are a smaller part of the mental health service market than the medical surgical market and Medicare benefit design substantially limits the substitution of outpatient for inpatient care which is possible in the medical-surgical system. The only two studies which give substantial clues to what provider response might be are Frank & Lave's (1985a) study of Medicaid length-of-stay caps, which showed that more patients were transferred to state hospitals and Rupp's study showing that per case payment was associated with increased psychiatric admissions in Maryland. While a national pricing system would have a very different effect (under a length-of-stay cap, the hospital cannot offset a short-stay patient against a long-stay patient), there is no evidence that providers would have a different response to national pricing. Of particular interest, no data are yet available on the response of psychiatric hospitals and excluded units to the per-case payment system which TEFRA has imposed on excluded psychiatric facilities.

5. STATE-TO-STATE VARIATION. Research shows large state-to-state variation in episode costs for mental health care. These differences cannot yet be assigned confidently to variations in state-level service system organization, quality, access to care, practice style, or efficiency. Thus, it is very difficult to project the impact of a national pricing system at the state level.

6. INSURANCE EFFECTS. In contrast to medical-surgical care, mental health care even to the insured is substantially constrained by insurance

coverage rules and benefit limits. It is not yet possible to distinguish variations in patterns of care attributable to insurance from those due to other factors.

7. ASSOCIATION OF SEVERITY OF ILLNESS WITH LENGTH OF STAY. The most striking research finding is negative. With the exception of Horn's Severity of Illness Index, there is very little demonstrable relationship between variables which would be expected to measure severity and length of stay or costs. Among the predictors which are weakly associated with length of stay:

--Disabling mental disorder. The lack of association for Medicare patients between being under 65 and length of stay strongly suggests that patients with disabling mental disorder do not stay longer on any admission than the less impaired. The disabled do appear to have more episodes of hospitalization per person, but this is not relevant to setting prices on a per-admission basis.

--Functional status. Leff's work shows a notably weak relationship between functional status at the time of admission and length of stay.

--Diagnosis. Although psychiatric diagnosis does not precisely measure severity any more than medical diagnosis precisely measures severity, it is clear that schizophrenia and affective disorders are almost universally agreed to be more serious disorders than situational and neurotic disorders. Yet diagnosis provides a very weak prediction of length of stay.

--Disease staging, which is a weak but real measure of severity, produces little more improvement in explained variation than we would expect from simply adding dummy categories.

--These negative findings contrast with Horn's finding that "severity"

strongly predicts resource use. The most likely explanation is that studies cited above use measurements of severity at admission and discharge diagnoses, while Horn uses both rapidity and completeness of response to treatment as measures of severity. These measures will reflect severity if treatment is identical but they will also reflect differences in efficiency, aggressiveness, and intensiveness of treatment. Until efficiency and severity can be separated, Horn's findings must be considered preliminary.

8. EVIDENCE ON EFFICACY OF LONG STAYS. A significant literature on treatment outcome suggests that, for selected populations, hospitalization beyond 28 days is associated with little benefit to the patient. Unfortunately, this research often excludes very chronic patients, some violent or suicidal patients, and elderly or demented patients. Furthermore, some practitioners do not agree that the outcome measures in these studies are appropriate and prefer long-term personal growth rather than symptom resolution as a measure of benefit. It is also clear that some institutions specialize in the treatment-resistant conditions which are exceptions to these general findings. What remains unclear is the extent to which an outlier policy can protect institutions which specialize in these patients.

9. OTHER POSSIBLE DETERMINANTS OF LENGTH OF STAY AND RESOURCE USE. Although the research findings do not permit firm conclusions, they suggest that two unmeasured factors may be extremely important in determining length of stay and in creating variation in length of stay both among patients and among institutions:

a. Treatment objectives.

--Some long-stay institutions are believed by both proponents and

critics to seek change in personality and in underlying methods of coping. Shorter stay institutions, especially highly acute general hospital units, make little effort to achieve these results during inpatient care.

--There is fairly strong anecdotal evidenced that few institutions have as high recovery objectives for the severely impaired as for the mildly impaired, especially if the impairment is chronic.

--The severely impaired are often reluctant to accept hospitalization and many, especially those who have been committed, sign out before their physicians would recommend discharge. In these cases, it is the limited therapeutic ambitions of patients which reduce the relation between severity and resource use.

b. Disposition options.

--The mental health and social welfare systems of a community may channel patients to different facilities according to their social supports. For example, patients with few friends, no permanent residence, and little money may be disproportionately referred to certain hospitals of "last resort". Those social supports are not usually part of a measure of severity but they strongly influence how soon a patient can be discharged.

--Disposition options, such a halfway houses and outpatient programs, are not equally available from community to community or even from hospital to hospital. Less widely discussed is the differing willingness of hospitals in different settings to accept certain options. For example, some hospitals are extremely reluctant or even unwilling to transfer a patient to a state or county hospital while others make such transfers regularly. Conversely, received transfers

are extremely expensive to treat.

C. IMPLICATIONS OF RESEARCH FOR DESIGNING A NATIONAL PAYMENT SYSTEM. Current research does not justify implementing the current DRGs or any currently available diagnosis-based alternative for presently excluded psychiatric units. On the other hand, this same research suggests how a payment system might be constructed which would be more equitable than TEFRA and more attractive to psychiatric hospitals. Such a system would involve modification of both the DRG classification system and the PPS payment system:

1. CLASSIFICATION SYSTEM VARIABLES. Here the goal is to overcome the very weak performance of classification systems based on diagnosis and demographic variables. The most important model is the modification recently proposed for the substance abuse DRGs (MDC 20).

a. Intensive psychiatric treatment. A professional consensus supports the idea that intensive inpatient treatment (which is generally the treatment provided in organized psychiatric units and psychiatric hospitals as opposed to scatter beds) is definable and should be paid for differently. Such intensive inpatient treatment is the psychiatric equivalent of operating room procedures which are used in classifying medical and surgical patients into DRGs.

b. Severity of Illness. If severity means either impairment or intensity of symptoms on admission, there is little research evidence to date than an effective classification system can be constructed using severity. Available measures of this kind of severity do not predict length of stay well, and impairment is not well measured by available instruments. If severity is measured by response to treatment, serious measurement problems must be solved before it is

possible to distinguish unresponsive disorders from inefficient treatment. Although measuring severity may make useful contributions to a classification system in the future, there is little hope that it will be useful in the next year or two.

c. Diagnosis. Although diagnosis is not a powerful predictor, evidence suggests that three diagnostic categories--psychoses, organic disorders, and all other--are useful; splitting psychoses into schizophrenia and affective disorders may also prove useful.

d. Age. Young patients who receive intensive treatment appear to stay much longer than other patients.

2. TRANSFERS. Transfers may be seen either as a marker of a patient characteristic or as a characteristic of an institution

a. Patient Characteristic. In psychiatric care, the patients most commonly transferred are those who were admitted to an institution specializing in acute care. If the patient fails to respond to treatment a transfer to a less acute facility follows. Research suggests that the hospital making the transfer has already spent as much as it spends on the typical patient by the time the transfer is made, but the receiving hospital spends about 4 times as much on the patient it receives in transfer as is spent on the average admission. Thus, being received as a transfer might be a patient characteristic used to classify the patient into a special DRG with a high payment.

b. Hospital Characteristic. Alternatively, the payment system might characterize hospitals according to whether they are net senders or receivers of transfers. This measure could identify certain hospitals as referral centers facilities and others as referring facilities. A more sophisticated version of this system would include patients

admitted within a brief period after discharge as if they were direct transfers. Payments might be adjusted at the hospital level to give referral centers somewhat higher payments in a way similar to the higher payments made to teaching hospitals. Since transfers present a payment for medical-surgical cases as well, hospital payment policies of this kind would probably be developed in coordination with broader PPS strategy.

3. PAYMENT SYSTEM CHANGES. Potential changes in the payment system range from reshaping of outlier policy to moves toward capitation.

a. Outliers. Even a much more powerful classification system will probably need a strategy which provides greater protection against the risk of unusual cases than PPS now offers. This is true because:

--psychiatric facilities are small, and thus less well protected by the law of large numbers

--unusual cases are more common in psychiatry than in medicine and surgery

--unusual cases are strongly concentrated in certain facilities.

Such a strategy should probably include reduced payments for low-cost outliers as well as an increased risk pool for high-cost cases. An outlier strategy alone might solve many of the problems of prospective payment for state and county facilities where daily costs are not dramatically higher than outlier payment rates.

b. Post-discharge Care. Encouraging substitution of outpatient services for inpatient care is very desirable if the strategy does not increase overall costs. One way to do this without changing Medicare's limited outpatient benefit would be to allow hospitals to include post-discharge services within their inpatient cost. This

approach would not increase current payments but would allow inpatient savings to be applied to outpatient follow-up care when DRG weights are recalibrated.

c. State-specific Rates. As described above, per-case costs vary widely from state to state. This suggests that per-admission rates may be best calculated at the state level with gradual transition to a national rate system as interstate variations are better understood.

d. Proportional Hazards Models. The discussion of classification earlier in this section focused primarily on the selection of variables. Further research might focus on whether some or all of these variables would be best handled using the statistical methods of Siegel and her colleagues rather than by forming new groups. These methods might be used to calculate specific payments or to define outlier cutoffs.

e. Capitation. As part I of this appendix made clear, the majority of admissions to excluded units are the disabled rather than the elderly. These individuals are high users of mental health services and would be ideal candidates for capitated delivery systems. The design of disease-specific capitation is difficult and capitation models are not likely to be ready in time to serve as a national solution to the excluded psychiatric facilities problem. Nevertheless, the approach is important both because it has potential for improving coordination of care for this population and because it is consistent with Medicare's overall movement toward capitated systems.

f. Lifetime Limits. The 190-day lifetime psychiatric hospitalization limit for facilities under PPS would not appear to be useful, since

PPS is deliberately oriented away from day-counting. In particular, it constrains tradeoffs of intensity v. duration which may be otherwise budget-neutral.

D. ESTIMATING THE IMPACT OF A SYSTEM BASED ON THIS APPROACH. Although based on the approach outlined above should have much less redistributive effect than implementing the present DRGs, the redistributive impact might still be considerable. This effect could be substantial by state as well as by type of hospital. There are four important issues:

1. WHAT WOULD BE THE IMPACT? Unfortunately, we cannot provide an adequate answer to this question because a substantial amount of critical data is not yet available for analysis. Unavailable data include:

a. 1984 inpatient records which identified those patients who were treated on excluded units. Data from previous years does not show which beneficiaries were actually treated in excluded units and which were treated in scatter beds located in hospitals which contained excluded units.

b. 1984 cost reports which would allow identification of costs specific to the excluded units and comparable cost reports for psychiatric hospitals which could be compared to those for units; in previous cost reports, the now-excluded units were generally indistinguishable parts of the general hospitals in which they are located.

c. 1984 payments to hospitals which would allow comparisons between amounts paid under TEFRA and those which would be paid under a PPS system; all comparisons in this paper have been to costs or length of stay, and comparisons to actual payments under TEFRA may be more meaningful to hospitals considering the acceptability of a PPS.

d. Data to distinguish between discharges from non-excluded units and discharges from scatter beds of hospitals with non-excluded units. Such data could be collected by a special coding effort comparable to that

used to collect data for alcohol treatment.

e. Data on an adequate sample of discharges from psychiatric hospitals, arrayed so as to be comparable to data for discharges from inpatient units. Such data could be developed but would require manipulations which were not possible in the time available.

In short, it is not possible to determine the impact of the proposed system.

2. WOULD THE REDISTRIBUTIVE EFFECTS BE FAIR? Although some suggestive data are available, there is little solid evidence that the redistribution which would occur would be fair or desirable. There is little chance that HCFA can develop a system which will be regarded as reasonable by all hospitals and units which lose under it, but it is necessary that reasonable clinicians regard the effects as defensible. Insufficient data is now available to permit such defense of the outcomes of the suggested system.

3. WOULD THE REDISTRIBUTIVE EFFECTS HURT BENEFICIARIES? Some of the data on the service system reviewed in the first part of this appendix suggest that the potential impact on beneficiaries is substantial. While Medicare discharges constitute 30% of discharges and nearer 40% of dollars for medical-surgical hospitals, Medicare discharges constitute less than 15% of psychiatric discharges and a comparable fraction of dollars. In practical terms, this means that Medicare has much less influence over psychiatric hospitals and excluded units. It is quite possible for such

facilities to forego Medicare participation or to avoid most Medicare discharges. Hospitals remaining in the system might then be placed at risk for a disproportionate share of higher cost patients, creating a risk of either declines in quality or further shrinkage in access to care.

This problem is aggravated because Medicare's conservative ambulatory psychiatric benefit means that psychiatrists also have less dependence on Medicare, reducing the indirect leverage which Medicare might have on facilities through their medical staffs.

The risk to psychiatric facilities is intensified because both units and hospitals tend to be smaller than most general hospitals and to be poorly protected by the law of large numbers. The exclusion has put some units in a highly exposed position where they are no longer protected by integration into a hospital as other specialty units of a hospital may be. Small size puts them at special risk because it will be difficult to differentiate bad luck in selection of cases from bad management.

Finally, the high degree of differentiation in the mental health services system makes transfers much easier and "skimming and dumping" much more feasible. The same features of the system which make it more efficient and coordinated than most parts of the health care system also make beneficiaries much more vulnerable if policies are changed so as to make Medicare discharges "losers" for large numbers of facilities.

4. WHAT ARE THEN BENEFITS TO HCFA OF INCLUDING EXCLUDED UNITS UNDER PPS. In the short run, benefits to HCFA of converting excluded units from TEFRA to PPS are modest. Although some benefits from increased efficiency would be expected to be realized in the future, these benefits would not be realized until the next recalibration after implementation--if, for example, units were brought under in October 1986, the first data for

recalibration would not be available until October 1987 and the recalibration would take effect in October 1988. The excluded units are already under the same restraints on total cost increase as are PPS units because the TEFRA and PPS allowances for inflation are identical. The incentives for efficiency under TEFRA are similar to those under PPS, although weaker. Asymetrical risk sharing may actually make TEFRA more economical than PPS for HCFA.

5. WHAT ARE THE BENEFITS TO PSYCHIATRIC FACILITIES OF INCLUSION UNDER PPS. There is an emerging view within psychiatry that it is not in the interest of the specialty to remain under TEFRA rather than PPS. Although this view is not yet a consensus, its proponents make the following points:

--In the long run it will be ridiculous and disruptive to have the per-discharge revenues of psychiatric facilities determined by inflating their 1983 per-discharge costs.

--The TEFRA system makes no allowance for outlier cases, so that hospitals have less protection against unusual cases than they would under PPS.

--TEFRA provides no systematic recognition of changes in case mix, forestalling hospitals from receiving adjustments if their referral patterns, community role, or specialization change.

--Risk exposure under TEFRA is asymetric--hospitals keep 50% of savings and lose all of their excess costs. Random year-to-year fluctuations make this a losing situation for typical hospitals.

--TEFRA limits appear to protect certain traditionally-expensive facilities at the expense of the efficient.

--Failure of psychiatry to find a way to move toward national payment

rates threatens further erosion of psychiatric benefits in health insurance programs.

E. CONCLUSIONS. The analytic conclusions reviewed above suggest two major conclusions:

1. EXPECTATION OF PROFESSIONAL SUPPORT FOR A REASONABLE SYSTEM. The profession has good reasons for supporting a reasonable PPS system, but it also had good reasons for opposing inclusion under the present DRGs. A system which can be shown to be reasonable, which does not imply that the system need be perfect, is likely to command substantial support from leaders in the field. The support of groups such as children's hospitals for moves toward inclusion in PPS suggests the kind of interest which may develop. It is important to keep in view that hospital groups have which have moved from TEFRA to PPS have generally supported the move because PPS seemed more realistic to them. This suggests considerable respect for the reservations of a group of hospitals which does not support such a change.

2. NEED FOR FURTHER RESEARCH. On the other hand, it has not been possible to conduct sufficient research to demonstrate that the alternative system suggested above will indeed produce a reasonable system with a fair effect. Further research is essential before implementing what now appears to be a plausible basis for a system. This research would provide three critical pieces of information and might provide several more:

--What would be the redistributive impact of the system, compared not only to current payments but also to costs?

--What hospitals will be winners and losers under such a system? Would the wins and losses be consistent with rewarding efficient quality care, or would hospitals be penalized for public service,

willingness to accept the sickest patients, or other activities which should be encouraged?

--Is there evidence from factors suggestive of severity of illness that losers would be facilities with more severe case mix, Which may also be hospitals of last resort and therefore especially vulnerable to any decrease in payments.

--Is the system reasonable for all psychiatric facilities or only for certain classes? Should institutions such as state and county hospitals continue to be excluded?

--What are the effects of the organization of the mental health delivery system in a state on costs for Medicare patients within the state? Is it possible to organize a fair payment system without taking account of these effects?

This information appears to be basic to a well-informed decision on the exact form of the system to be implemented. Some such data should be available from cost reports which will be ready for analysis in the summer of 1986. Data to identify unit and non-unit patients in hospitals without excluded units will take longer to collect--perhaps until early 1987.

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